REVISION OF THE MEXICAN GENERA *FICINUS* DISTANT AND *JORNANDES* DISTANT WITH THE DESCRIPTION OF 21 NEW SPECIES (HETEROPTERA: MIRIDAE: ORTHOTYLINAE: ORTHOTYLINI)

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ABSTRACT

The predominately Mexican endemic genera *Ficinus* Distant, 1893 and *Jornandes* Distant, 1884 are revised. *Rhinocapsidea* Reuter, 1908 is treated as a junior synonym of *Jornandes*. Two species of *Ficinus* are recognized, including one new species from Guerrero. Twenty-five species of *Jornandes* are recognized, including 20 new species, predominately from the southern edge of the Transmexican Volcanic Belt near the conjunction of the Balsas Basin and the Sierra Madre del Sur of Guerrero, Puebla, and Oaxaca. The new combinations, *Jornandes albipes* (Kelton, 1969) (*Scalponotatus*), *Jornandes genetivus* (Distant, 1884) (*Rhinocapsidea*), *Jornandes sinaloa* (Carvalho, 1987) (*Rhinocapsidea*) are proposed. *Jornandes dissimulans* Distant, 1983 and *J. nordestina* (Carvalho and Wallerstein, 1978) (*Rhinocapsidea*) are considered species incertae sedis. Keys to all recognized species are included. Illustrations of the male genitalia, dorsal habitus color photographs of both sexes (except for *J. championi* Distant, 1884), and new distributional records of all species are provided. Host records, where known, are listed. Scanning electron micrographs are presented to document the cuticular sculpturing of the corium, lateral view of the head, thorax, mesothoracic spiracle, and metathoracic scent-efferent system of representative species. The female genitalia of *F. sagittarius* and three species of *Jornandes* are documented with photographs.

INTRODUCTION

The acquisition of a significant amount of unidentified Orthotylini collected primarily in Mexico has focused attention on the difficulty of assigning species group names to these specimens. Much of the problem is the result of the relatively high percentage of undescribed species and confusion regarding the identity of certain of the genera. Much of the material belongs to a group of poorly defined genera that appear to be closely related or even synonymous. These genera are: *Amulacoris* Carvalho and China, 1959; *Ficinus* Distant, 1893; *Guerrerocoris* Carvalho and China, 1959; *Jornandes* Distant, 1884; *Lopidella* Knight, 1925; *Rhinocapsidea* Reuter, 1908; *Scalponotatus* Kelton, 1969; and *Slaterocoris* Wagner, 1956.

In the *Biologia centrali-americana* Distant (1884, part 29) described *genetivus* from Oaxaca, Mexico, assigning it to *Eccritotarsus* Stål, 1884. Subsequently (Distant, 1884, part 34) he described the genus *Jornandes* to accommodate his new species, *championi* from Guatemala. Ten new species were described and assigned to *Jornandes* by Distant (1893, part 109), among which only *cruralis* from Guererro, Mexico remains in its original generic placement. The other species have over time been accommodated in five other genera (see checklist below). Distant (1893) also described the genus *Ficinus* in the *Biologia centrali-americana* for his new species *sagittarius* from Guererro state. Reuter (1908), based on a number of external characters, reassigned *E. genetivus* to his new orthotyline genus *Rhinocapsidea*. Two species, *nordestina*, from Bahia, Brazil (Carvalho and Wallerstein, 1978), and *sinaloa* (Carvalho, 1987), from Mexico, were placed in *Rhinocapsidea*, without technical explanation of this generic assignment. Both were distinguished from the type species, *R. genetiva*, by their general coloration and male genitalia.

Materials and Methods

Matrix code labels were affixed to the specimens as a way to uniquely identify them; these codes are referred to as "unique specimen identifiers" (USIs). The USI codes, e.g., AMNH_PBI 00081052, which comprise an institution and project code (AMNH_PBI) and a unique number (00081052), are provided for all specimens we examined, and are included in locality data, appendix 1 (dorsal habitus photographs in figs. 2–4), and figure captions of the scanning electron micrographs, female genitalia photographs, and male genitalia illustrations.

Abbreviations for genitalic structures used on the figures are listed in appendix 2. All measurements are reported in millimeters. Label data of the holotypes of W. L. Distant are verbatim and enclosed by quotes in the "specimens examined" section of those taxa. Holotype label data for new species are also

verbatim with additional information enclosed by square brackets. Where possible, georeferenced localities are incorporated in the specimen data when this information was not part of the original label. The distribution maps were produced with the aid of Arc Map, Corel Draw, and Photo-Paint. All latitude-longitude data are presented in degree and decimal parts thereof. Altitude data are presented as metric with imperial units included in the holotype data if part of the original label. The majority of the specimens are housed at Texas A&M University, however, the deposition of all the specimens examined is provided. Please refer to the website of the Planetary Biodiversity Inventory of the Plant Bugs [http://research.amnh.org/pbi] under the Discover Life "search window" for additional information on specimens examined.

Because of the large range in size of the species the color habitus photos are not to scale. The sizes of the specimens for each species can be determined from the individual species treatments and Table 1, which lists the total length for both sexes of each species.

The dorsal margin of the genital segment aperture is illustrated for those species with developed tergal processes only. Every effort was taken to illustrate the structures of the male genitalia in a similar orientation; the orientation of each structure is included in the abbreviations accompanying the figures.

Scanning electron micrographs of gold-coated preparations were taken with a digital Philips XL30 ESEM. Dorsal habitus photographs were taken on a Microptics-USA photographic system equipped with an Infinity Photo-Optical K-2, three-lens system and Nikon D1X digital camera. Female genitalia digital photographs of unstained preparations were taken on a Leica CTR 5500/DM5500B system with photomontage technology.

Based on our interpretation of Article 30.2.4 of the ICZN (Ride et al., 1999) we treat the genus-group names *Ficinus* and *Jornandes* as masculine. Distant may have derived both genus-group names from historic individuals: Marsilius Ficinus was an Italian humanist philosopher of the early Italian Renaissance and Jornandes (or Jordanes), of the Eastern Roman Empire in the mid-sixth century, was a Catholic churchman and historian.

Delimitation of Taxon

The minute cuticular sculpturing of the clavus and corium is the single most important external character delimiting these genera as a group. With scanning electron microscopy the sculpturing consists of close-set shallow depressions covering the surface (figs. 1F, 6A, 17A, 20A, 28A). Magnification of ~50X and good lighting are required to best observe this feature with light microscopy. Specimens usually need to be manipulated until the light reflects from the surface at the correct angle. The sculpturing is most easily seen on dark fuscous to black species lacking prominent setae and most difficult to see on those species that are pale green in color.

The type species of *Jornandes* (fig. 1F), *Ficinus* (fig. 6A), and *Rhinocapsidea* (fig. 20A) have this type of cuticular sculpturation on the corium and clavus. Only *Ficinus* has shallow, closely set punctures also on the entire surface of the pronotum (fig. 6B). Traces of this sculpturing are occasionally seen on *Scalponotatus albibasis* Knight, 1938, which has a somewhat shagreen, rugose clavus and corium. However, the sculpturing pattern becomes conspicuously broken up by the underlying reticulation. *Amulacoris subalbicans* Distant, 1893 (fig. 1B), *Guerrerocoris punctatus* Distant, 1893 (fig. 1C), *Scalponotatus maturus* Kelton, 1969 (fig. 1D), and *Slaterocoris stygicus* (Say, 1832) (fig. 1E), the type species of these four genera, have distinct or indistinct, widely spaced punctures (or pores, fig. 1C) forming the hemelytral sculpturing. All the species we assign to *Ficinus* and *Jornandes* have dense, minute cuticular sculpturing.

Stonedahl and Schwartz (1986, 1988) diagnosed North American orthotyline genera based on male genitalia. In the Orthotylini the vesica spans the range from a very complicated structure with two or three spicula, each with many branches emanating from various regions, to an extremely simple, solitary, unbranched spiculum. Many of the taxa examined for this study have a single, apically recurved spiculum with much shorter

TABLE 1
Range of Total Length Measurement of *Ficinus* and *Jornandes*
All species measurements are in millimeters.

Species	N = ♂, ♀	Male	Female
F. distanti	9, 6	4.60–4.80	4.74–5.00
F. sagittarius	20, 20	4.40–5.32	5.04–5.68
J. albipes	2, 3	1.75–1.90	2.16–2.33
J. ater	5, 5	3.50–3.76	3.16–3.34
J. brailovskyi	4, 11	2.90–3.04	2.94–3.20
J. burserae	20, 20	3.56–4.00	3.00–4.10
J. ceibae	20, 20	3.44–3.86	3.48–3.82
J. championi	0, 1	–	2.86
J. crotoni	20, 20	2.40–2.94	2.66–3.10
J. cruralis	13, 13	3.85–5.00	3.80–4.36
J. genetivus	20, 20	3.94–4.70	3.84–4.60
J. heliocarpusi	4, 5	2.86–3.10	2.94–3.20
J. jaredi	20, 13	2.88–3.16	2.96–3.24
J. lynnae	20, 20	3.12–3.70	3.24–3.70
J. michoacanensis	4, 20	2.24–2.30	2.44–2.62
J. mimosae	20, 20	2.70–3.10	2.86–3.36
J. nathani	14, 20	3.20–3.70	3.08–3.58
J. rachelleae	15, 13	3.66–4.20	3.10–3.46
J. rileyi	2, 4	2.40–2.70	2.64–2.80
J. robustus	8, 9	4.02–4.54	3.70–4.28
J. sinaloa	3, 2	3.55–4.08	4.00–4.20
J. susanae	20, 20	3.36–3.82	3.46–3.82
J. tehuacanensis	20, 14	3.10–3.40	2.74–2.94
J. variabilis	4, 1	4.08–4.72	4.4
J. viridulus	8, 13	3.40–4.04	3.36–4.00
J. xochilapensis	4, 4	2.60–2.94	2.40–2.76
J. zapotecas	4, 7	2.50–2.68	2.50–2.94

basal processes of diverse form. The structure of the vesical spiculum in *Oaxacaenus vitreus* Carvalho and Schaffner, 1973 cannot be assessed from the original description and accompanying illustration (Carvalho and Schaffner, 1973: 73, fig. 14) as the authors concluded that the spiculum was absent. Our reexamination of the male genitalia of *O. vitreus* documents that the vesical spiculum is present and solitary, strongly recurved, and distally bifurcate with two marginally serrate branches.

The Mexican genera can be placed preliminarily in two groups based on the structure of the male genitalia. In the taxa we have examined, the apex of the left paramere can grossly be described as either deeply notched or mitten-shaped. Asquith (1991) described this region of the left paramere in *Lopidea* Uhler, 1872 as having medial and lateral lobes separated by a notch of variable depth. In addition to *Lopidea*, some form of a notched left paramere apex is found in *Ficinus*, *Fulgenticapsus* Schaffner, 1979, *Ilnacora* Reuter, 1876, *Ilnacorella* Knight, 1925, *Jornandes*, *Lopidella*, *Oaxacaenus* Carvalho and Schaffner, 1973, *Rhinocapsidea*, *Rolstonocoris* Schaffner and Ferreira, 1995, and some *Scalponotatus* spp. Of these however, *Ilnacora*, *Ilnacorella*, and *Lopidea* have two vesical spicula, a condition never found in the other genera. A smaller group of genera have the left paramere apex unnotched and terminating in a simple smoothly curved point. These genera are *Jornandinus* Carvalho and Schaffner, 1974, *Slaterocoris*, and some *Scalponotatus* spp.; all have a solitary recurved spiculum. Lacking the association of males with the female type specimens of *Amulacoris* and *Guerrerocoris* we cannot

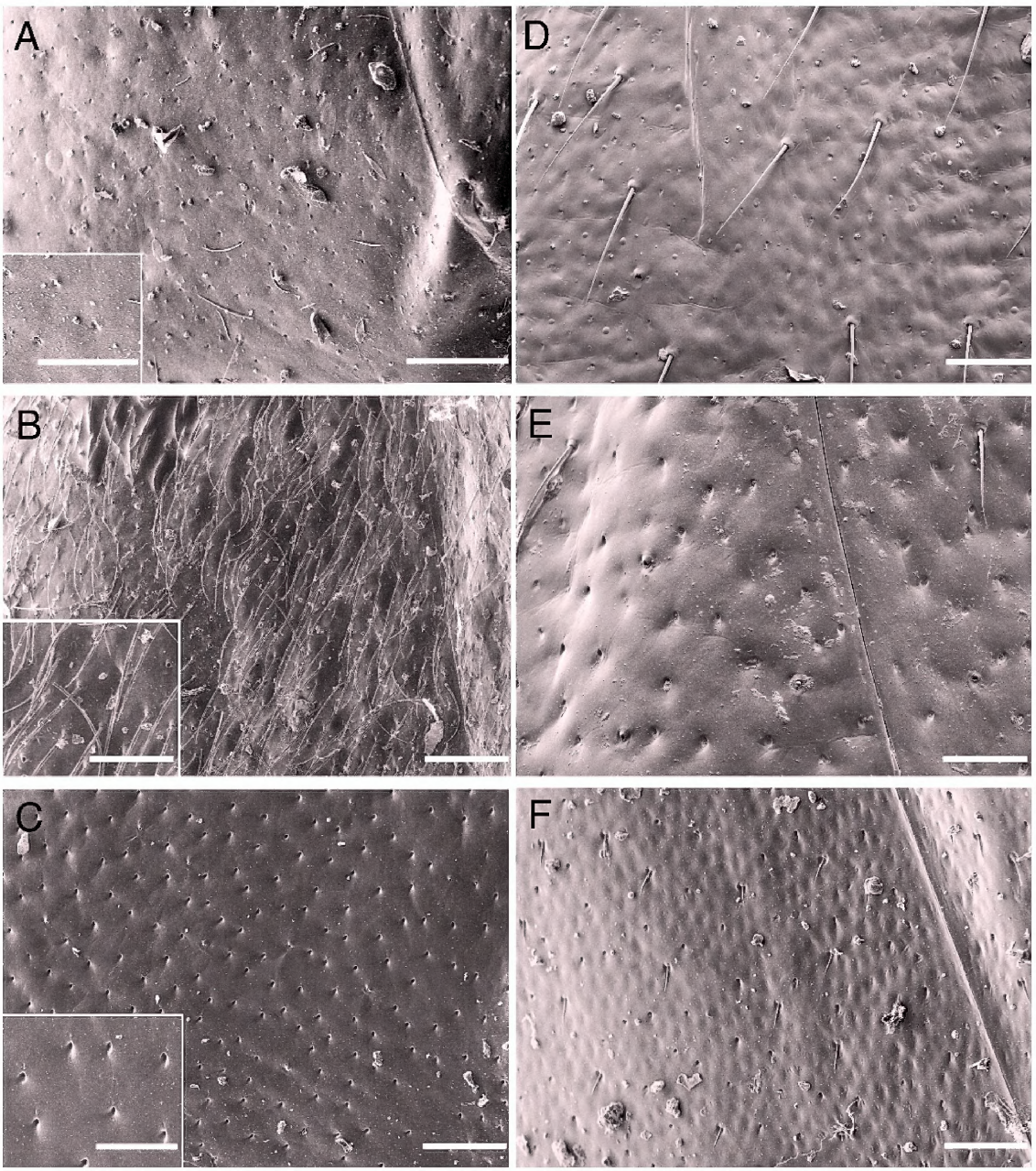

Fig. 1. Scanning electron micrographs of cuticular sculpturing on corium. **A.** ♀, *Amulacoris dissimulans*, Amula, Guerrero (AMNH_PBI 00085375); scales = 0.10 mm (inset scale = 0.05 mm). **B.** ♀, *A. subalbicans*, Amula, Guerrero (AMNH_PBI 00085373), 0.10 mm (inset scale = 0.05 mm). **C.** ♀, *Guerrerocoris punctatus*, Chilpancingo, Guerrero (AMNH_PBI 00085372), 0.10 mm (inset scale = 0.05 mm). **D.** ♂, *Scalponotatus maturus*, 5.3 mi SW of Salome, Arizona (AMNH_PBI 00112919); scale = 0.10 mm **E.** ♂, *Slaterocoris stygicus*, Black Sturgeon Lake, Ontario (AMNH_PBI 00112918); scale = 0.05 mm. **F.** ♀, *Jornandes championi*, La Mercedes, (AMNH_PBI 00085377); scale = 0.05 mm.

report on the state of the left paramere structure in these genera.

TAXONOMY

Ficinus Distant

Ficinus Distant, 1893: 449 (n. gen.); Reuter, 1910: 163 (catalog); Carvalho, 1952: 76 (catalog); Carvalho, 1955: 77 (key); Carvalho, 1958: 62 (catalog); Schaffner, 1979: 74 (note); Schuh, 1995: 109 (catalog).

TYPE SPECIES: *Ficinus sagittarius* Distant, 1893 (by monotypy).

DIAGNOSIS: Characterized by strongly declivous head (fig. 6B) with granulate surface and posterior margin carinate, relatively short labium, distinctive minute sculpturation, especially on clavus and corium continuing onto pronotum (fig. 6A); costal margins of corium subparallel, hemelytron not declivous posteriorly, making specimens appear relatively long and narrow (fig. 2); male genitalia with species-distinctive vesica, parameres, and tergal process (figs. 5, 7).

REDESCRIPTION: STRUCTURE: *Head*: Strongly declivous, minutely reticulate or granulate, somewhat shining; vertex slightly transversely sulcate, posterior margin carinate; frons rounded, weakly separated from clypeus; maxillary plate prominent; buccula clearly delimited; eye elongate as seen from side, located at rear of head; antennal socket only slightly removed from margin of eye; antennal segment I shorter than width of vertex, segments linear; relative lengths of segments from shortest to longest 1–4–3–2; labium reaching or almost reaching mesocoxa. *Pronotum*: Subquadrate, slightly declivous, minutely sculptured (similar to corium, fig. 6A), shining; lateral margins broadly rounded; posterior margin slightly sinuate medially; calli not delimited or barely so; mesoscutum partially exposed; mesopleuron shining; small evaporative area ventral to mesothoracic spiracle (fig. 6C); episternum dorsal to evaporative region of scent gland either with (fig. 6C) or without microtrichia; scutellum minutely rugulose, shining. *Hemelytron* as seen from side flat, not declivous at cuneus, costal margins subparallel, conspicuously curved downward; corium characteristically minutely sculptured, shining, embolium not delimited, cuneus approximately twice as long as wide, membrane primarily fuscous. *Abdomen*: Shining. *Pretarsus*: Claw strongly curved; pulvillus small, not extending beyond medial curve of claw; parempodium apically convergent. COLORATION: Black, antenna pale; sometimes with white marking on posterior half of clavus and apex of corium; legs pale except sometimes posterior portion of hind femur dark brown or red. VESTITURE: Head almost completely glabrous with a few scattered short setae; antenna segment I with two or three long erect setae; segments II–IV with semierect setae, not longer than diameter of segment to which attached; pronotum with sparse, short, semierect setae; with single erect seta arising from each anterolateral angle posterior to eye (not as readily seen on *F. sagittarius*); hemelytra almost glabrous with a few semierect setae; tibia with erect setae, most of which as long or longer than diameter of tibia; abdomen with elongate setae. GENITALIA: *Male*: **Genital segment** with bifurcate tergal process, form of process variable; ventroposterior margin of segment either ridged or notched; distal width of subgenital plate variable, either strongly projecting beyond aperture of capsule or not. **Left paramere** C-shaped in dorsal view; with mostly subequal diameter throughout; apical region deeply notched with point and rounded dorsolateral margin. **Right paramere** elongate, much longer in length than in left paramere; diameter subequal throughout; apical region attenuate to one or two lobes. **Phallotheca** cylindrical or conical, apex truncate; aperture large, open on right side, apex, and distally on left side; right margin smooth. **Vesica** with one large, variable length spiculum, situated on dorsal surface of ductus seminis; apical region of spiculum bifurcate, recurved, with strongly serrate narrow or flattened branches, reaching to middle or base of spiculum; base of spiculum sometimes with large, bifurcate process on left side. *Female*: base of ovipositor situated anterior to middle of abdomen; subgenital plate broadly triangular. Ventral view (fig. 8B): base of interior valvulae (gonapophyses 8, GP8) and adjacent vestibulum strongly sclerotized and convoluted each side of vulva (VUL), right side, in

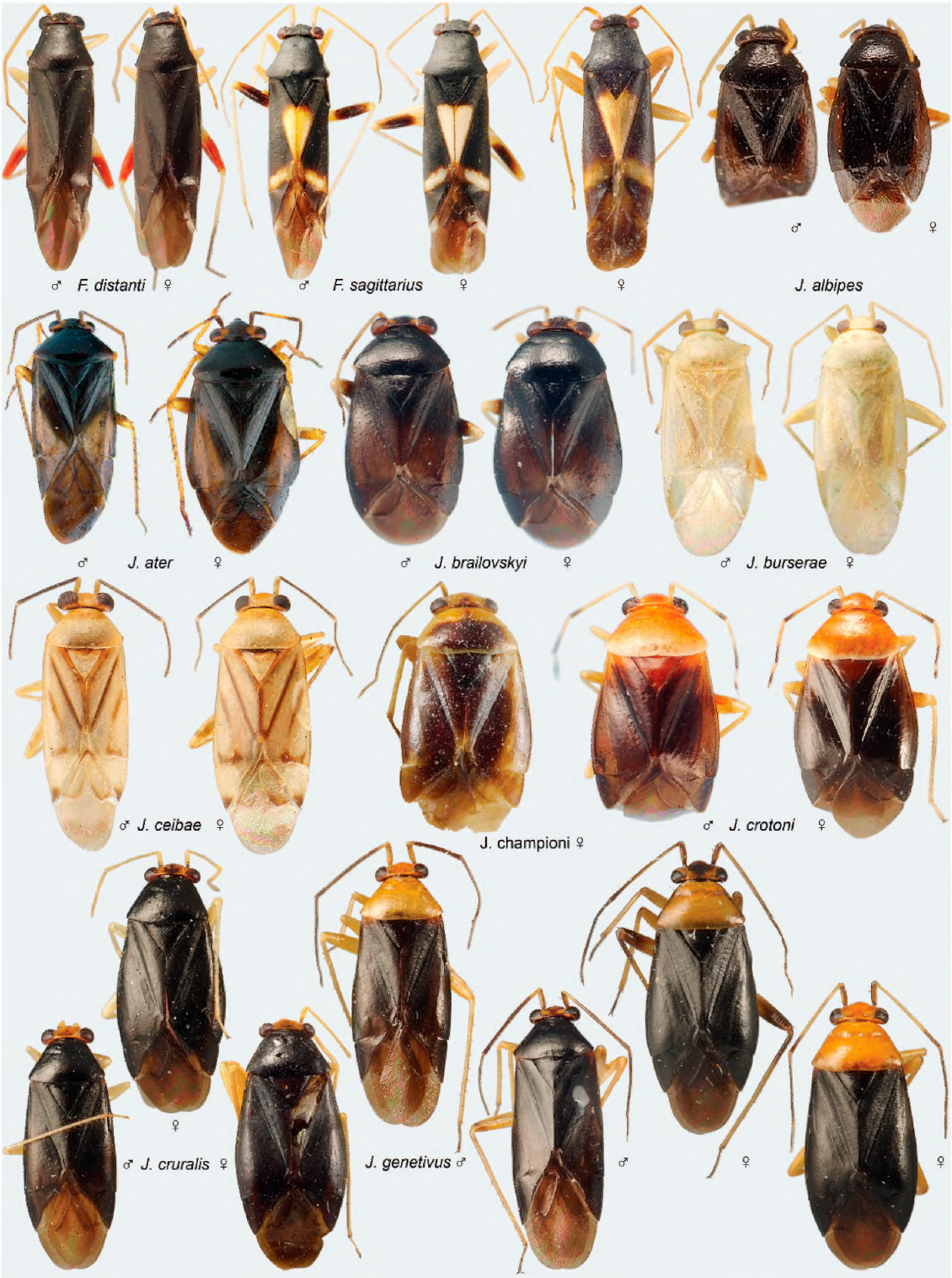

Fig. 2. Dorsal habitus photographs of *Ficinus* and *Jornandes* species (see appendix 1 for specimens photographed).

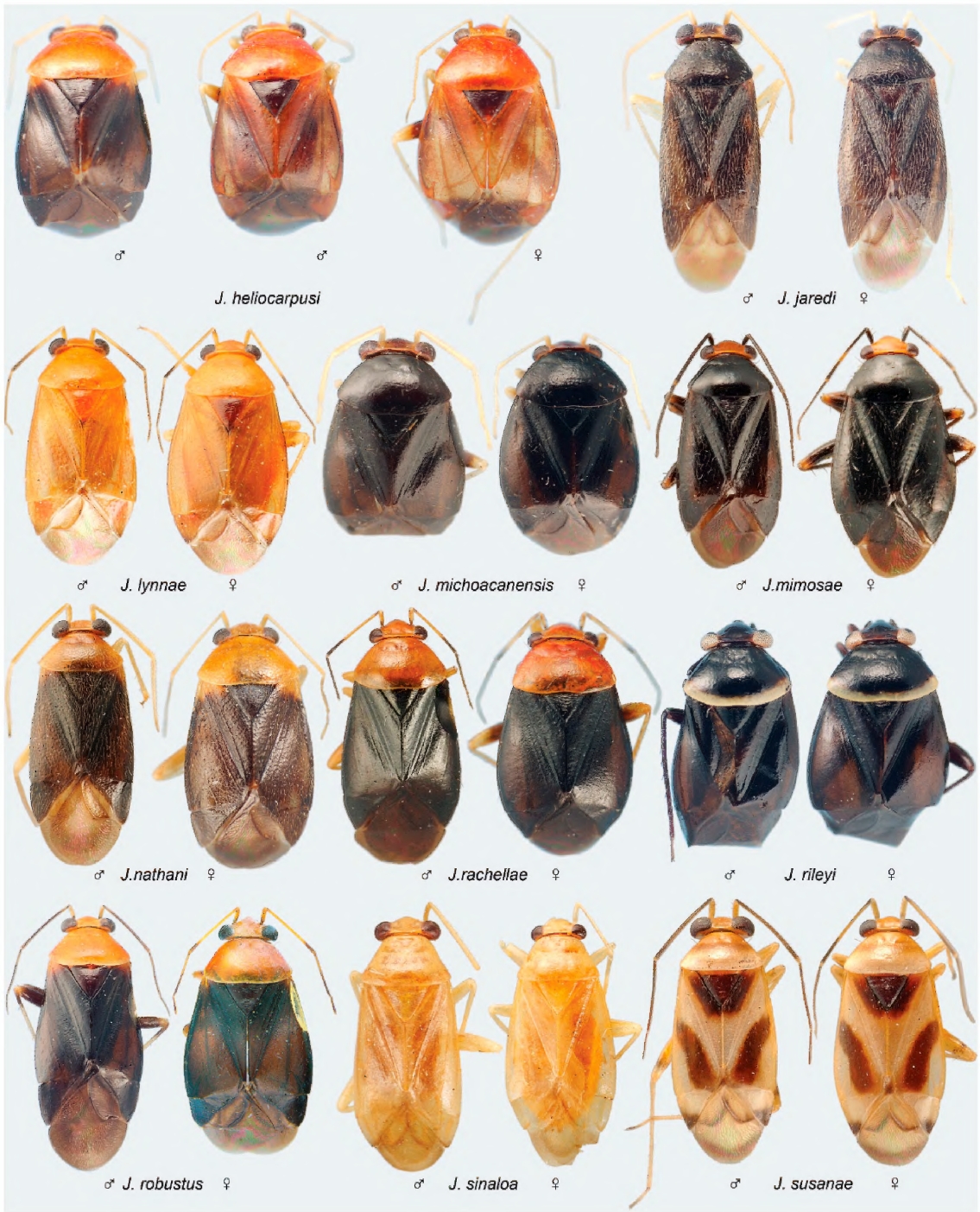

Fig. 3. Dorsal habitus photographs of *Jornandes* species (see appendix 1 for specimens photographed).

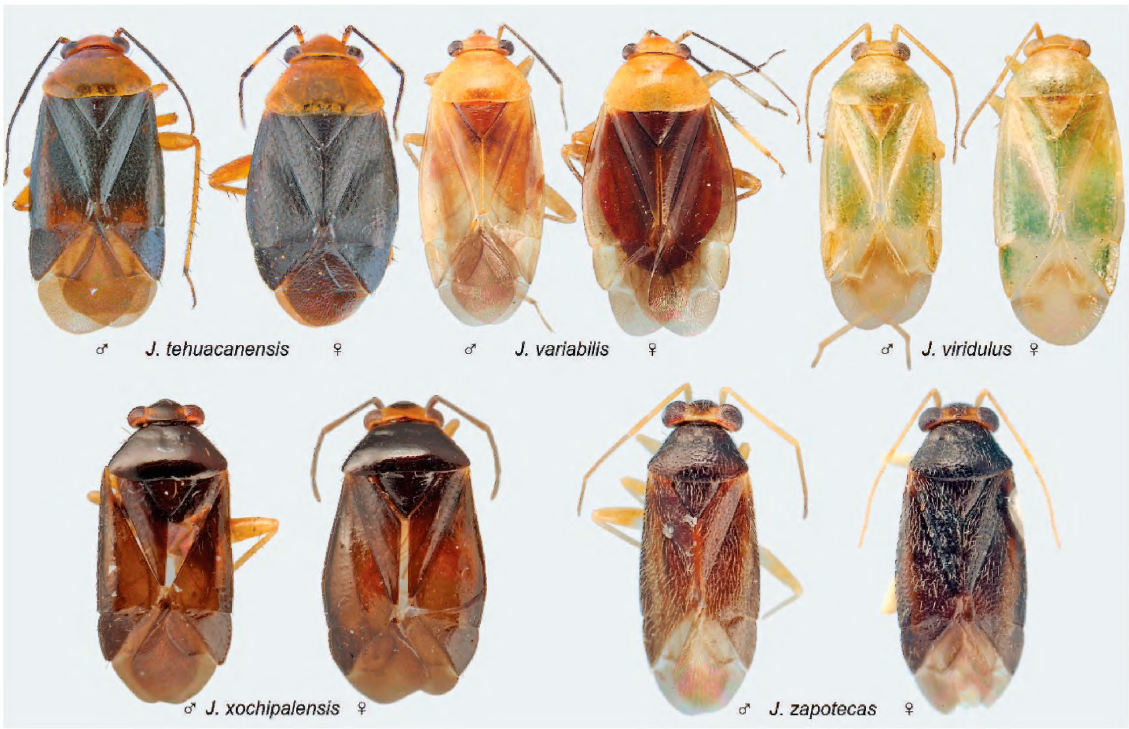

Fig. 4. Dorsal habitus photographs of *Jornandes* species (see appendix 1 for specimens photographed).

repose, overlapped by left side and adjacent convoluted ventral surface of ventral labiate plate (VLP); dorsal surface of VLP with microtrichia, ventral surface of VLP broadly or narrowly produced ventrally into vestibular opening (VUL). Dorsal view (fig. 8A).: sclerotized rings large, ovate, forming medial surface of folded, strongly sclerotized, dorsal labiate plate (DLP), folded medial region of DLP triangular, moderately or strongly projected medially; DLP ventral to common oviduct formed by bilateral pair of irregularly shaped sclerotized plates, anteromedial surface covered with spicules; DLP elongate in lateral view. Posterior view (fig. 8C): posterior wall composed of paired interramal sclerites, slightly overlapped on medial margins by broad, well-sclerotized medial process, and large, interramal lobes (IRL) with strongly spinose dorsal surface and deeply incised ventral margin, dorsal portion of IRL either as narrow or twice as wide as ventral portion; ventral portion narrow, bluntly attenuate, longer than dorsal portion of IRL.

DISCUSSION: This genus is very closely related to *Jornandes* with both sharing the unusual minute cuticular sculpturing seen most clearly on the corium of the hemelytron. The sculpturing on species of *Ficinus* continues onto the pronotum (fig. 6B) whereas *Jornandes* spp. (figs. 20B, 28B), with the exception of *J. cruralis* (fig. 17 B), have at most only traces of the sculpturing on the pronotum.

The two species of *Ficinus* appear long and narrow, partly because the costal margin of the hemelytron is curved conspicuously downward and the pronotum and the wing membrane are only slightly declivous. Species of *Jornandes* are much more variable in size and shape and most have the costal margin turned downward but not to the degree seen in *Ficinus* specimens.

The pronotum of *Ficinus* spp. is more or less quadrate, but in *Jornandes* spp. it is more triangular. The calli are weakly delimited in *Ficinus* whereas they are sometimes weakly delimited to obviously delimited in *Jornandes* spp.

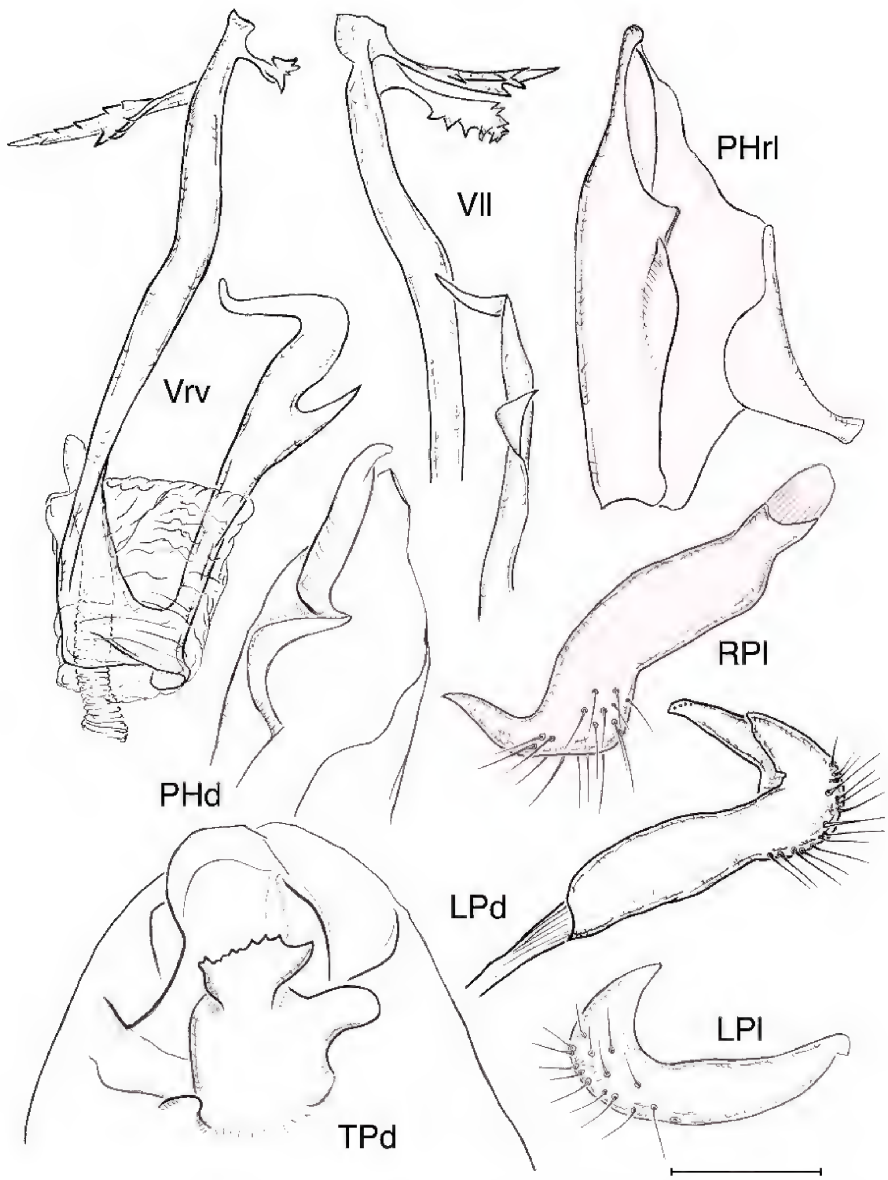

Fig. 5. Male genitalia of *Ficinus distanti*, 6 mi E of Xochipala, Guererro (AMNH_PBI 00118204); scale = 0.20 mm.

The male genitalia of the two included species is not entirely similar in form. Both species have a long, vesical spiculum, but in *F. distanti* it is conspicuously bifurcated whereas in *F. sagittarius* it has only one branch. The left parameres of these species are also dissimilar, with the apical region of *F. sagittarius* flattened and mitten-shaped and that of *F. distanti* having an unique, widely bifurcating apex not approached in form by *F. sagittarius* as well as species of *Jornandes*. The female genitalia of both included species share two characters based on our still incomplete survey of North American Orthotylinae. In *Ficinus* spp. the convoluted base of the anterior valvifers meshes with strongly convoluted projections from the ventral surface of the ventral labiate plate, the interramal lobes of the posterior wall are deeply incised, and the medial plate

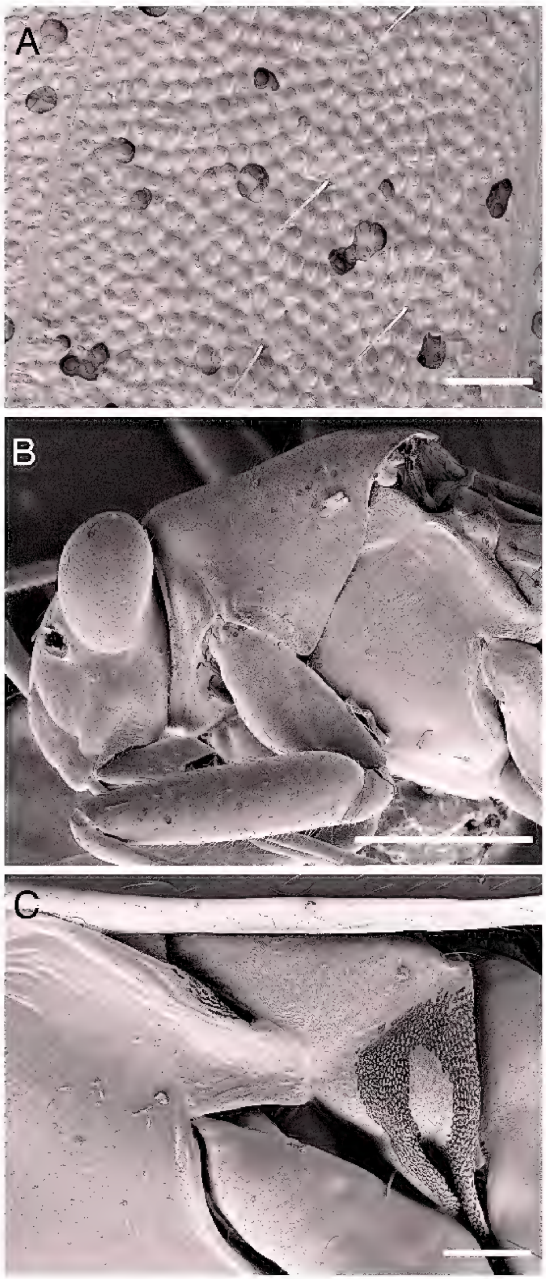

Fig. 6. Scanning electron micrographs of *Ficinus sagittarius*, Huajuapan, Oaxaca (AMNH_PBI 00114053). **A.** Cuticular sculpturing of corium, dorsal view; scale =0.05 mm. **B.** Head and thorax, lateral view; scale = 0.05 mm. **C.** Mesothoracic spiracle and metathoracic scent-efferent system, lateral view; scale = 0.10 mm.

of the posterior wall is flat. These features are also observed to some extent in *Jornandes* spp. We have assigned our new taxon to *Ficinus* primarily based on the obvious external similarity of the two included spp. rather than the less compelling genitalic features.

Members of the genus are found in the Mexican states of Guerrero, Morelos, and Oaxaca. Additional information on hosts, distribution, and biology are included under the generic discussion of *Jornandes*.

Key to the Species of *Ficinus* Distant

1. Dorsum dark fuscous to black with pale yellowish coloration on apical 2/3 of clavus and angular spot on corium near cuneus (fig. 2); hind femur entirely pale or with brown apically . . . . . *sagittarius* Distant
– Dorsum uniformly dark fuscous or black; hind femur red or reddish brown apically (fig. 2) . . . . . *distanti*, new species

Ficinus distanti, new species
Figures 2, 5, 9

Holotype: ♂, MEXICO: **Guerrero:** 6 mi E of Xochipala [17.7936°N 99.54263°W], elev. 3500 ft [1067 m], July 5–6, 1987, Kovarik, Schaffner (AMNH_PBI 00184916). Deposited in the collection of the Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City, D.F.

Diagnosis: Recognized by body dark fuscous to black, except for two small, pale brown spots on vertex near eyes; antenna and first two pairs of legs primarily pale, metathoracic leg pale with apical half of femur reddish or reddish brown, apical 2/5 of tibia fuscous (fig. 2); metepisternum dorsal to evaporative area of scent gland without microtrichia. The dark fuscous to black hemelytron and the reddish coloration on the hind femur easily separates this species from *F. sagittarius*. In *F. sagittarius* microtrichia are present well dorsal to the scent gland evaporative area (fig. 6C), whereas in the new species the metepisternum, dorsal to the evaporative area, is devoid of microtrichia.

Description: *Male*: COLORATION: Generally dark brown to black. Head dark

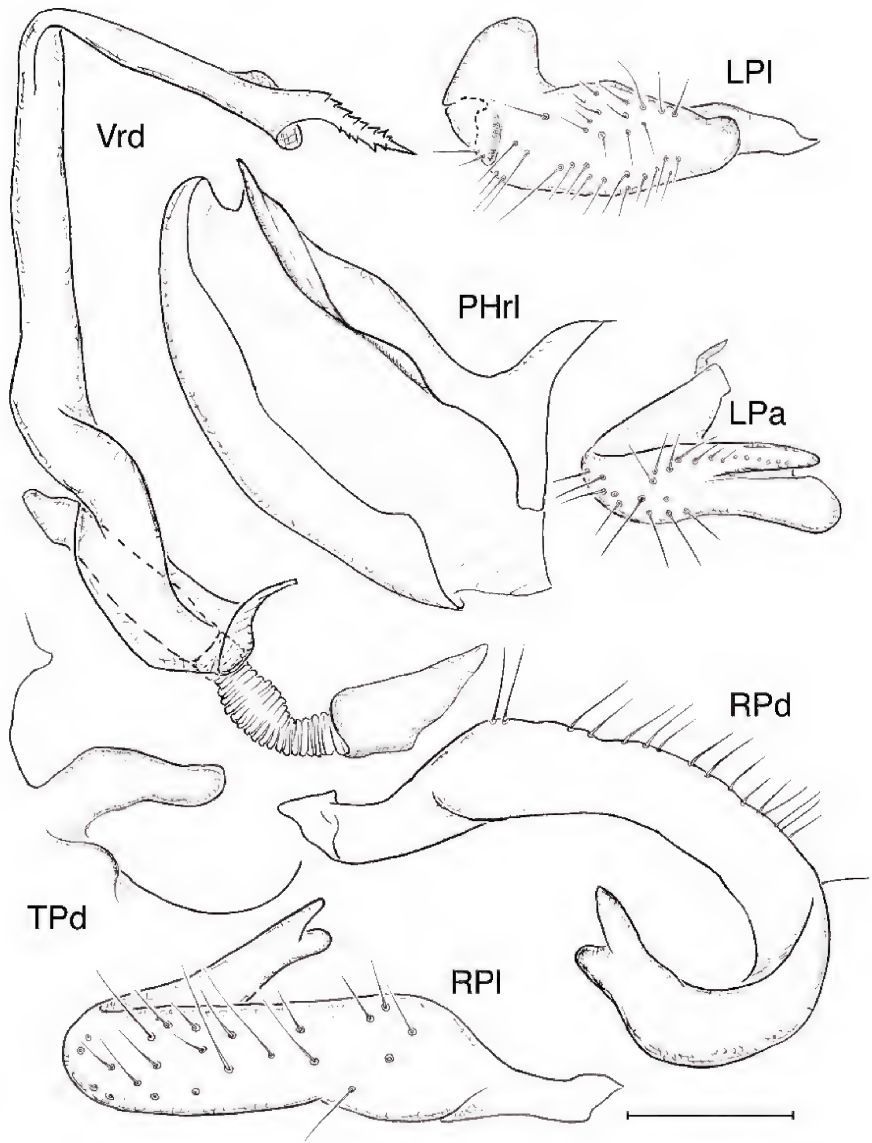

Fig. 7. Male genitalia of *Ficinus sagittarius*, Huajuapan, Oaxaca (AMNH_PBI 00112914); scale = 0.20 mm.

brown with paler area adjacent to margin of eye; base of antennal segment I fuscous, remainder of antenna yellowish brown frequently darker apically; labium pale yellowish brown, dark fuscous at apex. Pronotum uniformly black. Scutellum black. Hemelytron with corium uniformly dark fuscous to black, cuneus slightly paler, membrane uniformly fuscous. Coxae, trochanters, fore and hind femora, and tibiae pale yellowish to pale yellowish brown, basal 60% of hind femur pale yellowish with apical 40% red to reddish fuscous, hind tibia pale yellowish, fuscous apically, basal two tarsomeres usually pale yellow, tarsomere 3 fuscous. Underside of thorax shining, dark reddish brown, evaporatorium dark reddish brown, abdomen dark reddish brown to fuscous. GENITALIA (fig. 5): **Genital segment** with bifurcate tergal process projecting from midline of dorsal margin of aperture; right side of process with short rounded tubercle, medial region of

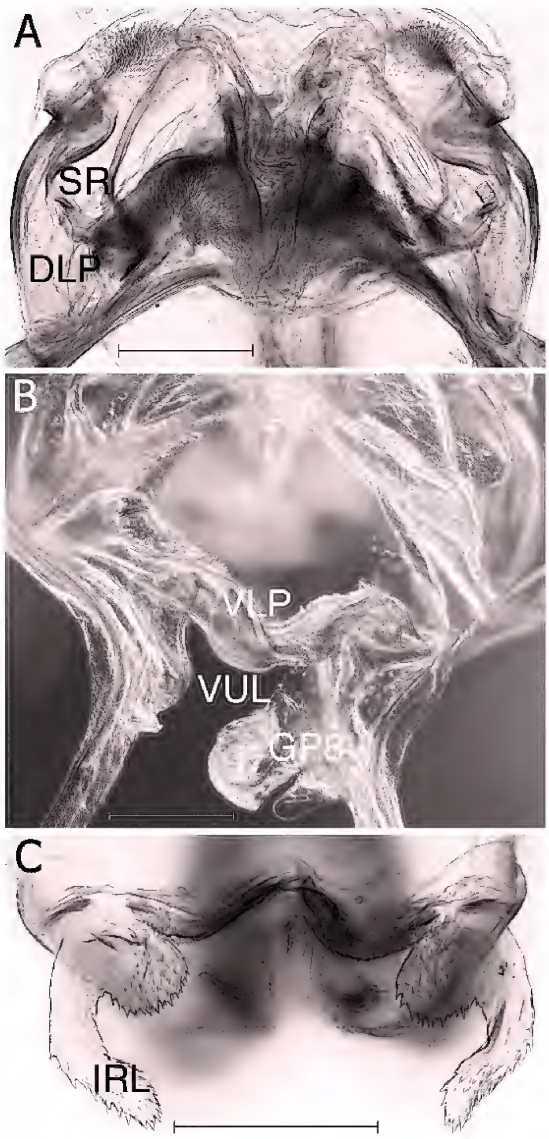

Fig. 8. Female genitalia of *Ficinus sagittarius*, Huajuapan, Oaxaca (AMNH_PBI 00113749). **A.** Sclerotized rings, dorsal view. **B.** Gonapophyses 8, ventral view. **C.** Posterior wall, posterior view. Scales = 0.20 mm.

process with crest-shaped, serrate flange, base of process with short dorsal tubercle; ventroposterior margin of capsule with narrow dorsoventrally orientated ridge; distal width of subgenital plate narrow, not projecting beyond aperture of capsule. **Left paramere** C-shaped in dorsal view; without sensory lobe; diameter of paramere subequal for entire length, except slightly thickened medially; apical region bifurcate with longer ventral lobe terminating in slightly pointed apex and shorter pointed lobe. **Right paramere** elongate, twice length of left paramere; diameter of paramere slightly thickened basally and apically; apical region curved dorsally, terminating in large point and several more basal and slightly smaller points. **Phallotheca** cylindrical, 2/3 length of spiculum; aperture large, open on right side, apex, and distally on left side. **Vesica** with one large, medially thickened spiculum, situated on dorsal surface of ductus seminis; apical region of spiculum bifurcate with recurved, strongly serrate branches reaching middle of spiculum; base of spiculum with large bifurcate lobe on left side surpassing apex of secondary gonopore.

Female: Similar to male in color and form.

MEASUREMENTS: *Male* (n = 9; measurements of holotype given first followed in parentheses by average and range): Length, 4.60 (4.72, 4.60–4.80); width, 1.16 (1.22, 1.16–1.30). Head length, 0.24 (0.25, 0.22–0.28); width through eyes, 0.82 (0.84, 0.82–0.86); vertex width, 0.34 (0.34, 0.32–0.36). Length of antennal segment I, 0.28 (0.27, 0.24–0.28); II, 1.12 (1.12, 1.04–1.16); III, 0.82 (0.79, 0.70–0.88); IV, 0.42 (0.44, 0.40–0.48). Pronotal length, 0.82 (0.87, 0.82–0.90); width, 1.16 (1.18, 1.14–1.22). Cuneal length, 0.80 (0.80, 0.76–0.84); width, 0.40 (0.38, 0.34–0.40).

Female (n = 6; mean followed in parentheses by range): Length, 4.86 (4.74–5.00); width, 1.29 (1.20–1.42). Head length, 0.25 (0.24–0.26); width through eyes, 0.83 (0.82–0.84); vertex width, 0.38 (0.38–0.40). Length of antennal segment I, 0.28 (0.26–0.28); II, 1.23 (1.20–1.30); III, 0.83 (0.80–0.86); IV, 0.44 (0.42–0.48). Pronotal length, 0.89 (0.86–0.92); width, 1.19 (1.16–1.24). Cuneal length, 0.80 (0.78–0.82); width, 0.39 (0.34–0.42).

DISCUSSION: Distant's 1893 description of *Ficinus sagittarius*, based on six specimens, listed a variety, "var. a. Clavus and corium black and unicolorous". The unnamed "variety" was not present at the BMNH during examination, by either of us on separate occasions, of the three paralectotypes (designated by Carvalho and Dolling, 1976). However, based on Distant's small but revealing description "var. a" is conspecific

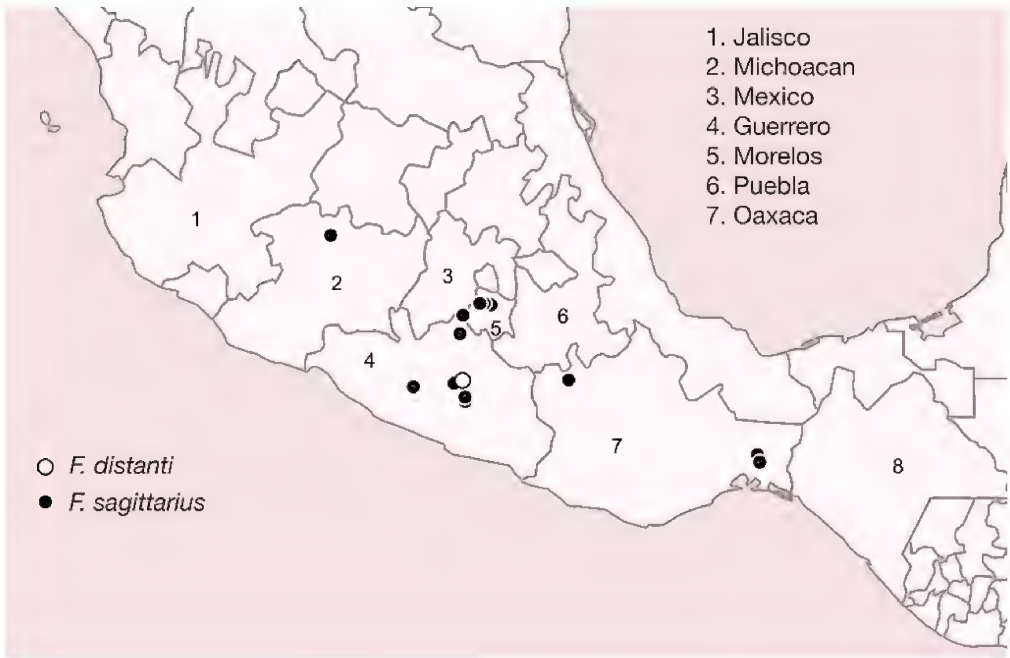

Fig. 9. Distribution of *Ficinus* species.

with the species here designated as *Ficinus distanti,* n. sp. The type locality of the Distant material is Chilpancingo, Guerrero, which is approximately 27 km south of Xochilapa, the area in which our specimens were collected. Both species of *Ficinus* were collected together near Xochipala, Guerrero. Three additional females from the type locality, but in poor condition because of alcohol preservation, are conspecific with the holotype.

HOST PLANT: Unknown.

ETYMOLOGY: This species is named in honor of W. L. Distant, the well-known English taxonomist, who described the genus *Ficinus* and its type species *F. sagittarius.*

DISTRIBUTION: Known from two localities in Guerrero (fig. 9).

PARATYPES: MEXICO: **Guerrero:** 6 mi E of Xochipala, 17.7936°N 99.54263°W, 1067 m, 13 Jul 1985, Jones, Schaffner, 1♂ (AMNH_PBI 00184976) (TAMU); 05 Jul 1987–06 Jul 1987, Kovarik and Schaffner, 1♂ (AMNH_PBI 00094259), 1♀ (AMNH_PBI 00119113) (AMNH). 1♂ (AMNH_PBI 00118204), 1♀ (AMNH_PBI 00119123) (CNC). 5♂ (AMNH_PBI 00119122, AMNH_PBI 00184977–AMNH_PBI 00184980), 4♀ (AMNH_PBI 00094260, AMNH_PBI 00184981–AMNH_PBI 00184983) (TAMU); 06 Jul 1987, J. B. Woolley and G. Zolnerowich, 1♀ (AMNH_PBI 00184975) (TAMU); 13 Jul 1985, J. B. Woolley and G. Zolnerowich, 1♂ (AMNH_PBI 00184974) (TAMU). Chilpancingo, 17.55°N 99.5°W, 1402 m, Jun 1890, H. H. Smith, 1♀, paralectotype of *F. sagittarius* (BMNH).

OTHER SPECIMENS EXAMINED: **MEXICO: Guerrero:** 6 mi E of Xochipala, 17.7936°N 99.54263°W, 1067 m, 13 Jul 1985, J. B. Woolley and G. Zolnerowich, 3♀ (AMNH_PBI 00184971–AMNH_PBI 00184973) (TAMU).

Ficinus sagittarius Distant
Figures 2, 6–9

Ficinus sagittarius Distant, 1893: 450 (orig. desc.); Carvalho, 1958: 62 (catalog); Carvalho and Dolling, 1976: 806 (disc. of type); Schuh, 1995: 109 (catalog).

DIAGNOSIS: Hemelytron with most of corium, cuneus, and base of clavus dark fuscous to black, remainder of clavus and usually an angulate spot immediately anterior to cuneus shining yellowish brown (fig. 2); metepisternum with microtrichia extending

well dorsal to evaporative area of scent gland (fig. 6C).

REDESCRIPTION: *Male*: COLORATION: General body coloration dark fuscous to black with yellow markings. Head black, slightly paler in area of maxillary plate; base of antennal segment I fuscous, remainder yellowish brown sometimes darker apically, remaining segments pale yellowish brown to pale fuscous; labium pale yellowish brown, dark fuscous at apex. Pronotum uniformly black. Scutellum black. Hemelytron with corium including cuneus dark fuscous to black, clavus from apex of scutellum and angulate spot on corium reaching cuneal suture pale yellowish brown; membrane fuscous with distinct clear spotlike area at apex of cuneus. Legs, except for fuscous apices of apical tarsomeres, pale yellowish brown; hind femur of specimens examined from Oaxaca with apical half fuscous. Underside shining, dark fuscous to black, evaporatorium dark fuscous to black. GENITALIA (fig. 7): **Genital segment** with bifurcate tergal process projecting from region slightly to right of midline on dorsal margin of aperture; medial lobe of process short and pointed, lateral lobe larger and hornlike; ventroposterior margin of capsule not modified, distal width of subgenital plate narrow, slightly projecting beyond aperture of capsule. **Left paramere** C-shaped in dorsal view; with slightly developed sensory lobe; diameter of paramere gradually expanded distally to wide, flattened mitten-shaped apex. **Right paramere** longer than left paramere; diameter thick basally and medially, distal region slightly attenuate to large, sinuate bifurcate apex. **Phallotheca** elongate, cone shaped, 1/2 length of spiculum; aperture convoluted, open on right side, dorsal margin, and apex, right margin with medial point and lateral flange. **Vesica** with one long, medially thickened spiculum, situated on dorsal surface of ductus seminis; distal region of spiculum bifurcate with recurved, strongly serrate branches almost reaching middle of spiculum; apex of process with S-shaped, somewhat flattened distal region; basal portion of spiculum approximately equal to length of sclerotized portion of ductus seminis.

Female: Similar to male in color and form. GENITALIA (fig. 8); right side of GP8 strongly produced, surrounded by cuplike left side; ventral surface of VLP broadly projecting into VUL; dorsal portion of IRL approximately twice as wide as ventral portion; otherwise as in generic description.

MEASUREMENTS: *Male* (n = 20; mean followed in parentheses by range): Length, 4.98 (4.40–5.32); width, 1.27 (1.10–1.44). Head length, 0.22 (0.18–0.26); width through eyes, 0.91 (0.86–0.98); vertex width, 0.46 (0.42–0.48). Length of antennal segment I, 0.40 (0.34–0.44); II, 1.43 (1.28–1.56); III, 1.18 (1.02–1.30); IV, 0.50 (0.40–0.54). Pronotal length, 0.87 (0.82–0.96); width, 1.30 (1.14–1.44). Cuneal length, 0.78 (0.68–0.82); width, 0.40 (0.34–0.42).

Female (n = 20; mean followed in parentheses by range): Length, 5.26 (5.04–5.68); width, 1.43 (1.32–1.62). Head width, 0.25 (0.24–0.28); width through eyes, 0.97 (0.94–1.02); vertex width, 0.52 (0.50–0.54). Length of antennal segment I, 0.41 (0.38–0.44); II, 1.47 (1.40–1.58); III, 1.17 (1.04–1.26); IV, 0.51 (0.44–0.58). Pronotal length, 0.93 (0.88–1.00); width, 1.34 (1.24–1.50). Cuneal length, 0.74 (0.68–0.82); width, 0.41 (0.38–0.44).

DISCUSSION: The color pattern of this attractive species shows some significant variation on the hind femur. Specimens from the state of Oaxaca have the hind femur with dark fuscous coloration, whereas specimens from Guerrero and Morales have a uniformly pale hind femur. The elongate spot anterior to the cuneus varies in size and is occasionally absent. There is moderate geographical variation in the size of the male genitalia, most easily observed in length of the vesical spiculum and size of the bifurcate serrate apical region. The vesica of specimens from Guerrero is approximately 30% larger than of those from Oaxaca. The lectotype along with three paralectotypes were designated by Carvalho and Dolling (1976). These specimens are deposited in the Natural History Museum, London. Distant (1893) mentioned that his description of *F. sagittarius* was based on six specimens; the whereabouts of two of these specimens is currently unknown.

HOST PLANTS: Both adults and nymphs of this species were taken on species of *Ipomoea* Roem and Schult (Convolvulaceae). This

small- to medium-sized tree grows commonly along stream beds found in these seasonally arid regions.

DISTRIBUTION: Known from 24 localities in Guerrero, Mexico, Morelos, Oaxaca, and Puebla at altitudes between 1,220 to 1,830 meters (approx. 4,000 to 6,000 feet) (fig. 9).

SPECIMENS EXAMINED: **MEXICO: Guerrero:** 1 mi NE of La Laguna, 19.91028°N 101.75586°W, 17 Jul 1984, Carroll, Schaffner, Friedlander, *Ipomoea* sp. (Convolvulaceae), 3♂ (AMNH_PBI 00119124–AMNH_PBI 00119126), 1♀ (AMNH_PBI 00119127) (CNC). *Ipomoea murucoides* Roem and Schult (Convolvulaceae), 25♂ (AMNH_PBI 00244628–AMNH_PBI 00244652), 4♀ (AMNH_PBI 00244653–AMNH_PBI 00244656) (TAMU). 10.3 mi S of Iguala, 17.70023°N 100.36666°W, 23 Jul 1981, Bogar, Schaffner and Friedlander, *Ipomoea murucoides* Roem. & Schult. (Convolvulaceae), 2♂ (AMNH_PBI 00244421, AMNH_PBI 00244422), 3♀ (AMNH_PBI 00244423–AMNH_PBI 00244425) (TAMU). 11.2 mi N of Iguala, 18.49691°N 99.60424°W, 1311 m, 05 Jul 1987, Kovarik and Schaffner, 5♂ (AMNH_PBI 00244426–AMNH_PBI 00244430), 5♀ (AMNH_PBI 00244431–AMNH_PBI 00244435) (TAMU). 2.1 mi N of Cacahuamilpa, 18.67339°N 99.55333°W, 19 Jul 1984, Carroll, Schaffner, Friedlander, 1♀ (AMNH_PBI 00244436) (TAMU). 2.1 mi NE of Cacahuamilpa, 18.74431°N 99.53547°W, 1600 m, 27 Jul 1983, Kovarik, Harrison, and Schaffner, 2♀ (AMNH_PBI 00244419, AMNH_PBI 00244420) (TAMU); 04 Jul 1987, Kovarik and Schaffner, 1♂ (AMNH_PBI 00244407), 4♂ (AMNH_PBI 00244408–AMNH_PBI 00244411), 7♀ (AMNH_PBI 00244412–AMNH_PBI 00244418) (TAMU). 5 mi S of Chilpancingo, 17.51488°N 99.49785°W, 1293 m, 01 Aug 1963, Naumann and Willis, 1♀ (AMNH_PBI 00117856) (KU). 6.2 mi SW of Xochipala, 17.75291°N 99.68363°W, 1728 m, 13 Jul 1985, Jones and Schaffner, 1♂ (AMNH_PBI 00119118), 1♀ (AMNH_PBI 00119119) (CNC). 1♀ (AMNH_PBI 00244679) (TAMU); 06 Jul 1987, 2♀ (AMNH_PBI 00119128, AMNH_PBI 00119129) (CNC). 13♂ (AMNH_PBI 00244657–AMNH_PBI 00244669), 9♀ (AMNH_PBI 00244670–AMNH_PBI 00244678) (TAMU). Chilpancingo [17.55°N 99.5°W, 1402 m], Jun 1890, H. H. Smith, Lectotype, 1♀ (AMNH_PBI 00085407) (BMNH); 24 Jul 1961, R. & K. Dreisbach, 5♂ (AMNH_PBI 00133952, AMNH_PBI 00133960–AMNH_PBI 00133963), 5♀ (AMNH_PBI 00133964–AMNH_PBI 00133968) (USNM). Cuernavaca to Acapulco Road, 24 Aug 1936, Ball and Stone, 1♂ (AMNH_PBI 00133973) (USNM). **Mexico:** Temascaltepec, Tejupilco, 18.89996°N 100.15051°W, 1341 m, Jul 1932, H. Hinton, 1♀ (AMNH_PBI 00080053) (UCB). **Morelos:** 10 km NE of Yautepec, 18.94464°N 99.0035°W, 1439 m, 13 Sep 1983, H. Brailovsky, 1♂ (AMNH_PBI 00244438) (UNAM). 12 mi E of Cuernavaca, 18.89741°N 99.06354°W, 1280 m, 12 Aug 1954, R. R. Dreisbach, 1♀ (AMNH_PBI 00127382) (UMMC). 4.4 mi E of Cuernavaca, 18.91665°N 99.18237°W, 06 Jul 1974–08 Jul 1974, Clark, Murray, Ashe, Schaffner, 1♀ (AMNH_PBI 00244437) (TAMU). Cuernavaca, 18.91666°N 99.25°W, 15 Aug 1954, R. R. Dreisbach, 3♂ (AMNH_PBI 00127377–AMNH_PBI 00127379), 2♀ (AMNH_PBI 00127380, AMNH_PBI 00127381) (UMMC); 13 Aug 1944, N. L. H. Krauss, 1♂ (AMNH_PBI 00133969), 2♀ (AMNH_PBI 00133970, AMNH_PBI 00133971) (USNM). **Oaxaca:** 10 km NW of Huajuapan, 17.88944°N 97.80863°W, 2139 m, 09 Aug 1988, J. T. Doyen, 1♀ (AMNH_PBI 00080054) (UCB). 10 mi N of Miltepec, 16.71209°N 94.61666°W, 04 Aug 1976, Peigler, Gruetzmacher, R&M Murray, Schaffner, 1♀ (AMNH_PBI 00119120) (CNC). 2♂ (AMNH_PBI 00116845, AMNH_PBI 00116846), 1♀ (AMNH_PBI 00116847) (JTP). *Ipomoea murucoides* Roem & Schult. (Convolvulaceae), 4♂ (AMNH_PBI 00244439–AMNH_PBI 00244442), 7♀ (AMNH_PBI 00244443–AMNH_PBI 00244449) (TAMU). 1♂ (AMNH_PBI 01333847) (USNM); 12 Aug 1978, Plitt and Schaffner, 1♀ (AMNH_PBI 00116848) (JTP). 2♂ (AMNH_PBI 00244453, AMNH_PBI 00244454), 3♀ (AMNH_PBI 00244450–AMNH_PBI 00244452) (TAMU); 15 Jul 1971–16 Jul 1971, Clark, Murray, Hart, Schaffner, 7♂ (AMNH_PBI 00244455–AMNH_PBI 00244461), 12♀ (AMNH_PBI 00244592–AMNH_PBI 00244603) (TAMU). 1♂ (AMNH_PBI 01333846) (USNM); 11 Jul 1973–12 Jul 1973, Mastro and Schaffner, 3♂ (AMNH_PBI 00244604–AMNH_PBI 00244606) (TAMU); 11 Jul 1973, Mastro and Schaffner, 1♂ (AMNH_PBI 00244607) (TAMU). 10 mi SE of Huajuapan,

17.80032°N 97.76728°W, 1612 m, 27 Jul 1965, Burke, Meyer, Schaffner, 2♂ (AMNH_PBI 00244402, AMNH_PBI 00244403), 3♀ (AMNH_PBI 00244404–AMNH_PBI 00244406) (TAMU). 31.3 km SE of Huajuapan de Leon, 17.66531°N 97.5606°W, 2000 m, 11 Aug 1988, J. K. Liebherr and D. A. Yager, 10♀ (AMNH_PBI 00116213–AMNH_PBI 00116222) (CUIC). 38 km SE of Huajuapan, 17.60843°N 97.52862°W, 2312 m, 11 Aug 1988, J. Doyen, 2♂ (AMNH_PBI 00080043, AMNH_PBI 00080044), 8♀ (AMNH_PBI 00080045–AMNH_PBI 00080052) (UCB). 4 mi NE of Miltepec, 16.60092°N 94.57941°W, 21 Jul 1984, Carroll, Schaffner, Friedlander, 6♂ (AMNH_PBI 00244611–AMNH_PBI 00244616), 11♀ (AMNH_PBI 00244617–AMNH_PBI 00244627) (TAMU); 21 Jul 1984, J. B. Woolley, 2♂ (AMNH_PBI 00244608, AMNH_PBI 00244609), 1♀ (AMNH_PBI 00244610) (TAMU). Huajuapan, 17.8°N 97.76667°W, 1633 m, 25 Aug 1969, L. A. Kelton, 22♂ (AMNH_PBI 00110999, AMNH_PBI 00112258, AMNH_PBI 00112914, AMNH_PBI 00112916, AMNH_PBI 00113748, AMNH_PBI 00114053, AMNH_PBI 00114065, AMNH_PBI 00114249–AMNH_PBI 00114263), 27♀ (AMNH_PBI 00112257, AMNH_PBI 00113749, AMNH_PBI 00114066, AMNH_PBI 00114264–AMNH_PBI 00114287) (CNC). Tehuantepec, 16.33333°N 95.23333°W, 21 Jul 1952, E. E. Gilbert and C. D. MacNeil, 1♂ (AMNH_PBI 00080042) (UCB). **Puebla:** 34 mi SE of Acatlan, 17.80703°N 97.78427°W, 1609 m, 09 Jul 1952, E. E. Gilbert and C. D. MacNeil, 1♂ (AMNH_PBI 00080041) (UCB). **Unknown State:** Unknown locality, 1♂ (AMNH_PBI 00133972) (USNM).

Jornandes Distant

Jornandes Distant, 1884: 301 (orig. desc.); Atkinson, 1890: 48 (catalog); Kirkaldy, 1906: 146 (catalog); Reuter, 1910: 163 (catalog); Carvalho, 1952: 77 (catalog); Carvalho, 1955: 76 (key); Carvalho, 1958: 80 (catalog); Carvalho and Schaffner, 1973: 69 (note); Schuh, 1995: 127 (catalog).

TYPE SPECIES: *Jornandes championi* Distant, 1884 (by monotypy).

Rhinocapsidea Reuter, 1908: 54 (orig. desc.); Carvalho, 1952: 79 (catalog); Carvalho, 1955: 78 (key); Carvalho, 1958: 130 (catalog); Schaffner, 1979: 74 (note); Schuh, 1995: 191 (catalog). NEW SYNONYM.

TYPE SPECIES: *Eccritotarsus genetivus* Distant, 1884 (by monotypy).

DIAGNOSIS: Characterized by the declivous head (figs. 17B, 20B, 28B) having the posterior margin carinate, the usually relatively short labium, the shiny appearance of the head and body, the impunctate pronotum and head, the distinctive minute sculpturing on corium and clavus (figs. 1F, 17A, 20A, 28A) rarely extending onto pronotum (*J. cruralis* fig. 17B), and features of the male genitalia, especially the vesica, parameres, and tergal process. The relatively long anteocular portion of the head in comparison to the height of the eye in lateral view of *Jornandes* is superficially reminiscent of other North American Orthotylini (e.g., *Ilnacora*, *Ilnacorella*). In *Jornandes* the eye height is always greater than the anteocular region and the frons is at most gently convex, with the vertex deeply transversely concave. In *Ilnacora* and *Ilnacorella* the anteocular region is always greater than the eye height, the frons is usually tumid, sometimes greatly so, and the vertex is slightly concave. The male genitalia in these two orthotyline genera are of a different form and the presence of scalelike setae is not known for the species of *Jornandes*.

REDESCRIPTION: STRUCTURE: *Head*: Strongly declivous, smooth and shining; vertex weakly transversely sulcate, posterior margin marginate or carinate; frons slightly to moderately rounded, usually shallowly separated from clypeus; anteocular distance variable, length ranging from 1/2 of eye height to subequal to eye height; maxillary plate prominent; buccula narrow, eye elongate as seen from side, located at posterior margin of head; antennal socket touching margin of eye; antennal segment I usually shorter than vertex width; antennal segment II ranging from slender and somewhat clavate to linear and more robust; diameters of segments III and IV variable, sometimes as great as segment II but usually less; relative lengths of segments from shortest to longest 1–4–3–2 or rarely 4–1–3–2; labium relatively short, usually not reaching posterior margin of mesosternum, occasionally extending onto

metasternum. *Pronotum*: Shining, ranging from smooth to faintly rugulose; more or less triangular in shape; not strongly declivous; lateral margins rounded, calli smooth and weakly delimited; pleural and sternal regions except prosternum shining; small evaporative area ventral to mesothoracic spiracle (figs. 17C, 20C, 28C); metepisternum dorsal to evaporative region of scent gland with microtrichia continuing dorsally (figs. 17C, 20C) (except in *J. burserae*, *J. rachelleae* (fig. 28C), and *J. viridulus*) on at least part or all of episternum; mesoscutum not exposed or only slightly so; scutellum slightly convex; often faintly transversely rugose. *Hemelytron*: Corium minutely and characteristically sculptured (figs. 1F, 17A, 20A, 28A), shining; usually curved downward laterally; embolium often not clearly delimited except at base; *Legs*: Coxa usually with pollinose areas (composed of microtrichia). *Pretarsus*: Claw strongly curved; pulvillus minute or small and not extending beyond medial curve of claw; parempodium apically convergent. COLORATION: Variable, ranging from entirely pale, pale green, or with discrete brown marks to entirely black; sometimes variable portion of head, antenna, pronotum, and base of hemelytron orange red, posterior margin of pronotum rarely pale; legs variable; membrane generally fuscous but paler on species with paler body color. VESTITURE: Head consisting of a few usually short, scattered setae; antennal segment I with several long erect setae, one or two of which about as long as diameter of segment; segments II–IV with decumbent setae and some species also with erect setae; pronotum with single erect seta arising from each anterior corner posterior to eye; hemelytra ranging from almost glabrous to with long semierect setae; membrane frequently with a few semierect setae (not seen on some species); hind tibia with long erect setae; abdomen shining with elongate setae. GENITALIA: **Genital segment** with variable tergal process(es) projecting from right of, or at midline of, dorsal margin of aperture; ventroposterior margin of capsule with either notch or flange; subgenital plate usually situated asymmetrically near left paramere fossa; distal width of subgenital plate narrow to moderately wide, either projecting just beyond or dorsal to aperture of capsule on right side. **Left paramere** C-shaped in dorsal view; usually without produced sensory lobe; diameter of variable width, usually with subapical constriction; apex with terminal notch, mittenlike. **Right paramere** variable, elongate or C-shaped; sensory lobe variable, not developed, with broad process, or with long narrow spine; marginal surface and apex variable: smooth, serrate, or with obvious spines. **Phallotheca** length and shape variable, conical or rectangular; aperture sinuate, jagged, or with deep notch on right side, dorsally with narrow slot or open widely. **Vesica** with one prominent spiculum usually attached to right dorsal surface of proximal region of sclerotized part of ductus seminis; spiculum usually with sinuate "trunk", medial part often expanded; distal region of spiculum with variably shaped "branch(es)"; usually branch(es) recurved or projecting to right side, partially serrate, narrow or needlelike diameter, apically pointed; sometimes narrow, curved, pointed spine protruding from middle of spiculum trunk or posterior edge of spiculum base; sometimes spiculum with flattened, truncate process projecting from anterior portion of base.

Female: Coloration and body form, except for the smaller eye and wider vertex, usually same as for male. GENITALIA: base of ovipositor situated anterior to middle of abdomen; subgenital plate broadly triangular or shield shaped. In ventral view (fig. 19C) base of interior valvulae (gonapophyses 8, GP8) and adjacent vestibulum strongly sclerotized and complexly convoluted on each side of vulva (VUL), either side in repose overlapped by other side and sometimes overlapped by adjacent convoluted ventral margin of ventral labiate plate (VLP); dorsal surface of VLP with microtrichia, ventral surface of VLP sometimes broadly or narrowly produced ventrally into vestibular opening; in dorsal view; sometimes right gonapophyses 8 with tubercle projected immediately ventral to medial surface of subgenital plate (fig. 19C). Sclerotized rings moderately large to large, ovate, forming medial surface of folded, strongly sclerotized, dorsal labiate plate (DLP), folded medial region of DLP variable in size, triangular, moderately or strongly projected medially; DLP ventral to common oviduct sometimes

formed by bilateral pair of irregularly shaped sclerotized plates, otherwise area membranous; DLP elongate in lateral view. Posterior wall in posterior view (fig. 19A, B) composed of paired interramal sclerites, merging with broad, well-sclerotized medial section; medial section sometimes with convex mound or tubercle projecting posteriorly, and large, interramal lobes (IRL) with strongly spinose dorsal surfaces, shape variable, either entire or with incised ventral margins; if IRL incised, then dorsal portion of IRL shorter than ventral portion, ventral portion sometimes narrow, apex blunt or pointed.

DISCUSSION: The species of this genus are diverse in color, shape, and size. Some species are primarily dark fuscous to black whereas others are relatively brightly colored and occasionally with attractive patterns. The costal margins of the hemelytron may be parallel or curved and the lengths of the insects vary from 1.75 to 5.00 mm. The vestiture is also quite variable in length and density. All species of *Jornandes* have the distinctive minute sculpturing of the clavus and corium (figs. 1F, 17A, 20A, 28A), declivous head, and relatively short labium.

The structure of the male genitalia of the included spp. is diverse with the shape of the right paramere and vesical spiculum appearing especially species specific. However, within this array of genitalic form are several features that we consider diagnostic for the genus. The vesica has a solitary spiculum that in the majority of the included spp. is recurved apically, regardless of the number of accessory branches. The apical region of the left paramere is always notched, providing for medial and lateral lobes and a mitten shape. All but three species (*J. crotoni*, *J. mimosae*, and *J. tehuacanensis*) have tergal processes on the dorsal margin of the genital aperture originating to the right of, or at, the middle.

We examined the female genitalia for all the included spp. except *J. championi* and *J. variabilis*, for which only one female is known for each taxon. The structure of the female genitalia is as diverse as that encountered in the male genitalia. We provide photographs of selected features of the female genitalia for three *Jornandes* spp. (fig. 19) to document a small portion of the variation. Any statements concerning diagnostic characters of the female genitalia would be premature.

Comparative information on the female genitalia is not available for all members of the group of Mexican genera we hypothesize to be related to *Jornandes* based on the roughly similar structure of the male genitalia (see "Delimitation of Taxon"). Based on our still incomplete survey of North American Orthotylini genera, we can report here that attributes of the posterior wall (including a diversity of structure in the lateral and medial portions of the interramal sclerite and the interramal lobes) and dorsal labiate plate (including variation in the conformation of the sclerotized rings) observed in the type species of *Ficinus*, *Fulgenticapsus*, *Jornandinus*, *Ilnacora*, *Lopidella*, *Lopidea*, *Oaxacaenus*, *Rolstonocoris*, *Scalponotatus*, and *Slaterocoris* are not found in the included spp. of *Jornandes*. Drawing further inference regarding the relationships of these genera to *Jornandes* is beyond the scope of the current paper.

Whether the fused lateral and medial sections of the interramal sclerite and the usually modified ventral surface of the ventral labiate plate projecting ventrally into the vulvar region are diagnostic for spp. of *Jornandes*, and to a more limited extent in *Ficinus* (see generic descriptions above), will await a comprehensive study. All the related genera listed above and *Jornandes* have extensively sclerotized and convoluted gonapophyses 8 and ventral labiate plates. This feature is widely distributed in the Orthotylini (Pluot-Sigwalt and Matocq, 2006) and as such cannot be deemed diagnostic for any of these genera. When females of more species are examined we suspect that the vulvar area and the shape of the interramal lobe will prove to be as diverse and species specific as the right paramere and the vesical spiculum are in the male genitalia (see illustrations of the female genitalia for *Orthotylus* spp. and *Nesiomiris* spp. in Southwood, 1953, and Gagne, 1997, respectively).

Lacking a phylogenetic analysis we can only propose several tentative species groups for the genus based on external appearance and male genitalia. *Jornandes ater* and *J.*

xochipalensis: similar highly polished color pattern, antennal segment II with few, long setae, short labium, and the right paramere with a narrow, basal tubelike process. *Jornandes burserae* and *J. viridulus*: pale greenish yellow with little fuscous coloration, subequal vertex width and length of antennal segment I, semierect setae dorsal vestiture, male genitalia with elongate apex of the right paramere, C-shaped left paramere, and vesica with trifid apical region and relatively long basal branch or process. *Jornandes ceibae* and *J. susanae*: patterned dorsal and head coloration, antennal segment II dark and segment I pale, eye sexually dimorphic (larger in male), subequal vertex width and antennal segments I and II, and male genitalia with medially placed tergal process, C-shaped left paramere with a small apical notch, and vesica with similarly curved and laterally serrate distal region. *Jornandes cruralis*, *J. genetivus*, and *J. sinaloa*: large, parallel-sided costal margins, vesical spiculum with bifurcated terminal branches, long right paramere, and mostly spinose tergal processes (in *J. cruralis* and *J. sinaloa*) *Jornandes jaredi* and *J. zapotecas*: parallel-sided costal margin, long, decumbent, evenly distributed dorsal setae, pale antenna and legs, eye sexually dimorphic (larger in male), male genitalia with small, apically serrate vesical spiculum, and large tergal processes on right side of genital aperture. *Jornandes mimosae* and *J. tehuacanensis*: although with dissimilar dorsal vestiture, the head in both sexes entirely orange brown, female antennal segment II with pale annulus medially, and male genitalia including a small right paramere with spinose dorsal lobe, moderately long C-shaped left paramere with wide apical notch, vesical spiculum bifid, with one long and one short serrate process, and genital aperture without tergal processes.

We cannot be certain of the generic placement of two species currently assigned to *Jornandes*. Distant (1893) described *J. dissimulans* from Guerrero, Mexico based on a single female. Carvalho (1958) originally considered it to be the junior synonym of *subalbicans*, swayed by the similar facies and identical type locality of the two nominal taxa. This synonymy was maintained when Carvalho and China (1959) erected the new genus *Amulacoris* to accommodate *subalbicans*. Subsequently Carvalho (1981) restored the species status of *dissimulans* within *Amulacoris*, and later concluded (Carvalho, 1988) that it was not congeneric with *A. subalbicans*. We cannot describe the male genitalia, having failed to associate the holotype of *dissimulans* with any known species of *Jornandes*, *Scalponotatus*, and *Slaterocoris*. Because its cuticular sculpturation (fig. 1A) is not formed by minute, densely set punctures we can only support Carvalho's conclusion that *J. dissimulans* be considered *incertae sedis*.

The assignment of *nordestina* to *Jornandes* is suspect based on its Brazilian distribution, cuticular sculpturation, and male genitalia. None of the specimens examined for this study are from further south than northern Guatemala. Even though a photo of the holotype seems to indicate that the cuticular texture of the clavus and corium might be composed of densely set punctures, it is not conclusive. The color pattern of the dorsum with the scutellum concolorous with the head, pronotum, and base of the hemelytron is not found in species of *Jornandes*. If the scutellum is pale in any of the included spp., then the base color of the entire body is pale. The strongest evidence against continued placement of *nordestina* in *Jornandes* is the unique form of the male genitalia. Whereas most species of *Jornandes* have a single recurved vesical spiculum, with minor basal or medial branches, the spiculum of *nordestina* is broad basally with two large multidissected, recurved branches. Additionally, the parameres are unlike any Mexican taxon, especially the left paramere, which does not have a mittenlike apex, but conspicuously has a large basal process longer than the length of the entire paramere (see Carvalho and Wallerstein, 1978: figs. 8–10). The correct placement of *nordestina* may necessitate erecting its own generic-level taxon. Such action is beyond the scope of the present study, so we propose *incertae sedis* status for *J. nordestina*.

The distribution of the *Jornandes* is primarily Mexico with a single species (*Jornandes championi* Distant) occurring in Guatemala (fig. 10).

Host plant associations are known for 13 of the 27 species considered in this paper. A summary of the host genera and associated families are as follows: *Montana* and *Parthenium* (Asteraceae), *Bursera* (Burseraceae), *Ipomoea* (Convolvulaceae), *Croton* (Euphorbiaceae), *Desmanthus*, *Mimosa* (Fabaceae: Mimosoideae), *Salvia* (Lamiaceae), *Ceiba* (Malvaceae), *Recchia* (Simaroubaceae), and *Heliocarpus* (Tiliaceae). This diverse group ranges from roadside plants (*Croton*), to bushes (*Mimosa*), and small (*Ipomoea*) or large trees (*Ceiba*). Only *Jornandes genetivus* is found on more than one plant family, with hosts in the Asteraceae, Convolvulaceae, and Euphorbiaceae. The other species of *Ficinus* and *Jornandes* are known only from a single species of plant. Discerning a pattern of host utilization in the species of these two genera obviously awaits further knowledge of their plants hosts.

Of the 27 recognized species of *Ficinus* and *Jornandes,* 19 are distributed across an arid band extending from Tehuacan and Coxcatlan, Puebla, on the east to Iguala and Chilpancingo, Guerrero, on the west (figs. 9–10). This is a distance of only approximately 240 km (150 miles) that ranges from roughly 1,200 to 1,850 meters (4,000–6,000 feet), but spreads over portions of three biogeographic provinces as listed by Morrone (2006). The area is located at the southern edge of the Transmexican Volcanic Belt Province at its confluence with the Balsas Basin and Sierra Madre del Sur provinces.

Five species outside this area occur at localities in western Mexico extending northward to the states of Sinaloa, Sonora, and Baja California Sur. Two species occur only in southern Oaxaca, with *Jornandes championi* known only from the Guatemalan type specimen. Besides three specimens of *J. genetivus*, no other species were found from Chiapas, however a few unusable specimens on hand suggest that two undescribed species occur there. No members of the *Ficinus* and *Jornandes* are known to occur on the Mexican Plateau or in the eastern coastal region.

With three exceptions, specimens seen in this study were collected in the months of July and/or August. This is consistent with the rain patterns found commonly in most arid areas of Mexico. The rainy season, which initiates vegetation growth, usually starts in June and lasts into September. It would appear that only a single generation of these insects occurs per year. A limited amount of rain sometimes occurs in March and could conceivably produce a generation; however, no specimens were collected during the subsequent months.

Checklist of Species-Group Names Proposed in or Currently Used in *Jornandes*
(valid names are printed in bold)

albipes (Kelton, 1969) (*Scalponotatus* Kelton, 1969)
ater, new species
brailovskyi, new species
burserae, new species
ceibae, new species
championi Distant, 1884
crotoni, new species
cruralis Distant, 1893
dissimulans Distant, 1893, incertae sedis (see Carvalho, 1988, previously *Amulacoris* Carvalho and China, 1959)
genetivus (Distant, 1884) (*Eccritotarsus* Stål, 1860)
heliocarpusi, new species
intermedia Distant, 1893; see *Falconia* Distant, 1884 (Carvalho, 1952, n. comb.)
jaredi, new species
lautus Distant, 1893; see *Falconia* Distant, 1884 (Carvalho, 1952, n. comb.)
lynnae, new species
michoacanensis, new species
mimosae, new species
nathani, new species
nordestina (Carvalho and Wallerstein, 1978) incertae sedis (*Rhinocapsidea* Reuter, 1908)
parvus Distant, 1893; see *Falconia* Distant, 1884 (Carvalho, 1952, n. comb.)
praeustus Distant, 1893; see *Ceratocapsus* Reuter, 1876 (Carvalho, 1952, n. comb.)
punctatus Distant, 1893; see *Guerrerocoris* Carvalho and China, 1959
rachelleae, new species
rileyi, new species
robustus, new species
semirasus Distant, 1893; see *Falconia* Distant, 1884 (Carvalho, 1952, n. comb.)
sinaloa (Carvalho, 1987) (*Rhinocapsidea* Reuter, 1908)
subalbicans Distant, 1893; see *Amulacoris* Carvalho and China, 1959
susanae, new species

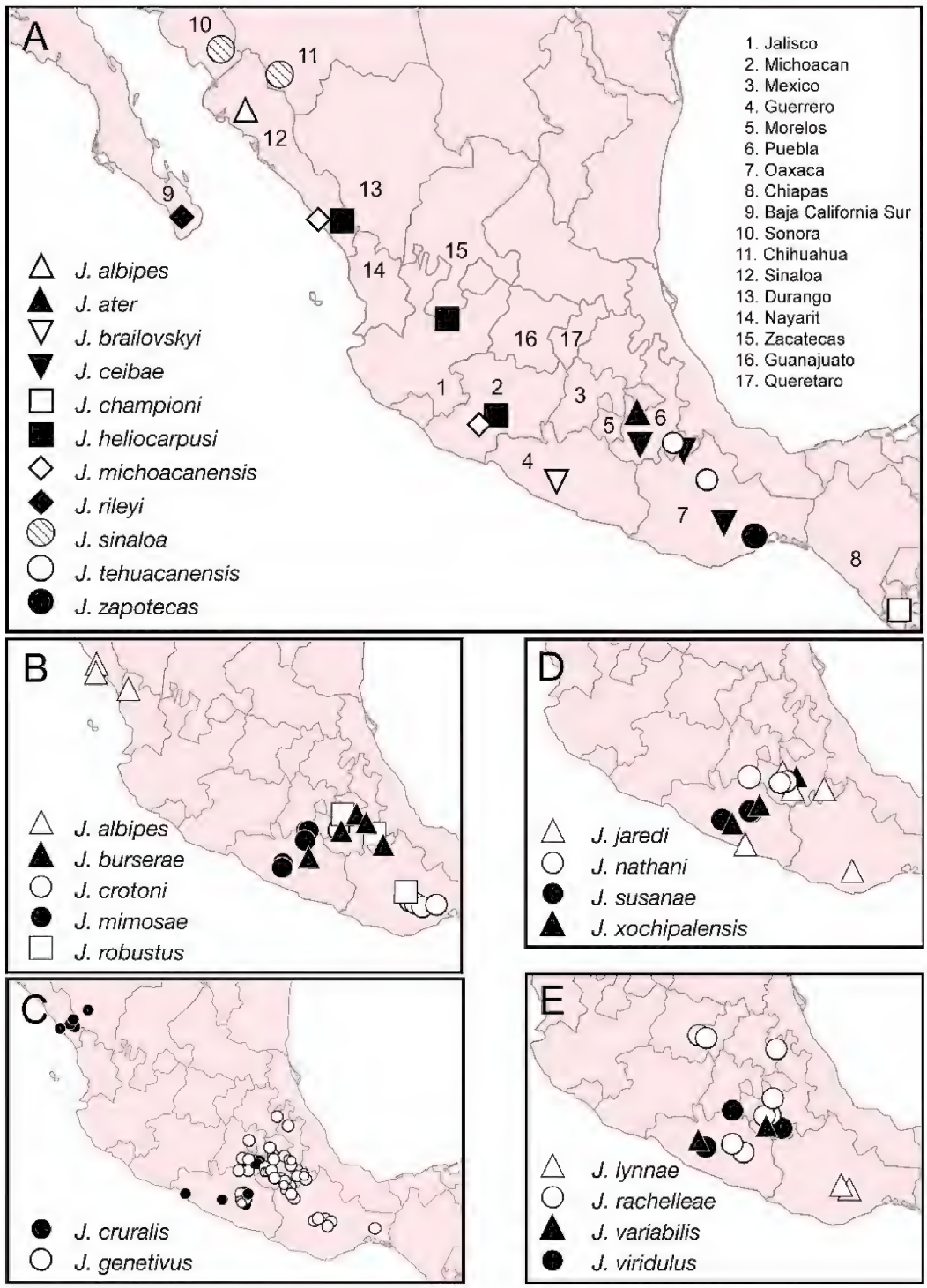

Fig. 10. Distribution of *Jornandes* species. **A.** *J. albipes, ater, brailovskyi, ceibae, championi, heliocarpusi, michoacanensis, rileyi, sinaloa, tehuacanensis, zapotecas*. **B.** *J. albipes, burserae, crotoni, mimosae, robustus*. **C.** *J. cruralis, genetivus*. **D.** *J. jaredi, nathani, susanae, xochipalensis*. **E.** *J. lynnae, rachelleae, variabilis, viridulus*.

tehuacanensis, new species
variabilis, new species
viridulus, new species
vulgaris Distant, 1893; see *Sthenaridea* Reuter, 1885 (Schuh and Schwartz, 1988, n. comb.)
xochilapensis, new species
zapotecas, new species

Key to the Species of *Jornandes* Distant

1. Pronotum and corium uniformly black or dark fuscous 2
– Pronotum and corium variously colored but not uniformly black or fuscous 11
2. Antenna entirely pale except segment I sometimes pale fuscous at base 3
– Antenna dark brown to black or with at least apex of segment II fuscous to black 7
3. Femora pale or slightly fuscous 4
– Femora primarily dark fuscous to black with apex pale . . . . *michoacanensis*, new species
4. Corium with conspicuous decumbent setae; body length from 2.50–3.24 5
– Corium glabrous with a few scattered setae; body length less than 2.25 or greater than 4.00 6
5. Total length of male, 2.88–3.16, female 2.96–3.24; antennal segment II 2.8 times as long as segment IV . . . . . *jaredi*, new species
– Total length of male 2.50–2.68, female 2.50–2.94; antennal segment II 2.2 times as long as segment IV . . . . . *zapotecas*, new species
6. Head including vertex dark fuscous to black; length 1.80–2.20 . . . . . *albipes* (Kelton)
– Head primarily brown; length 4.10–5.00 . . . . . *cruralis* Distant
7. Head as seen from above brownish orange with clypeus dark fuscous to black . . . . . *mimosae*, new species
– Head primarily fuscous to black sometimes with brown areas near eyes 8
8. Setae on antennal segment II decumbent and length about as long as diameter of segment . 9
– Antennal segment II with a few semierect setae almost twice as long as diameter of segment 10
9. Femora uniformly brownish yellow; antennal segment II uniformly fuscous; length, 3.84–4.70 . . . . . *genetivus* (Distant)
– Femora dark fuscous to black with apex pale; antennal segment II pale, fuscous at apex; length, 2.90–3.20 . . . *brailovskyi*, new species
10. Procoxa primarily pale; length, 2.40–2.94 . . . . . *xochipalensis*, new species
– Procoxa primarily dark fuscous; length, 3.16–3.76 . . . . . *ater*, new species
11. General coloration dark fuscous to black, posterior margin of pronotum broadly pale . . . . . *rileyi*, new species
– Coloration not as above 12
12. Hemelytron and scutellum uniformly dark fuscous to black (base of hemelytron sometimes paler). 13
– Hemelytron and scutellum not uniformly dark fuscous to black 18
13. Corium with conspicuous evenly distributed short decumbent setae 14
– Corium primarily glabrous 15
14. Antennal segment II pale, occasionally apex slightly fuscous . . . . . *nathani*, new species
– Antennal segment II dark fuscous to black . . . . . *tehuacanensis*, new species
15. Maxillary plate not fuscous, usually with reddish tinge . . . . . *crotoni*, new species
– Maxillary plate fuscous to black 16
16. Posterior margin of pronotum with reddish markings; posterior margin of mesepimeron and anterior area of metepisterum yellowish orange . . . . . *robustus*, new species
– Lateral margins of pronotum lacking reddish markings; posterior margin of mesepimeron and anterior area of metepisternum dark fuscous to black 17
17. Hind coxa dark fuscous to black; propleuron orange brown . . . . . *rachelleae*, new species
– Hind coxa pale; propleuron nearly always black . . . . . *genetivus* (Distant)
18. Area of pronotum posterior to callus and corium of hemelytron pale with either the claval suture or the scutellum dark fuscous to black 19
– Color not as above 20
19. Claval suture dark fuscous; scutellum pale . . . . . *ceibae*, new species
– Claval suture not dark fuscous; scutellum and adjacent area of clavus dark fuscous to black . . . . . *susanae*, new species
20. Pronotum pale brown with large medial fuscous area . . . . . *championi* (Distant)
– Pronotum lacking fuscous area 21
21. Femora primarily dark fuscous to black; pronotum reddish, brownish orange, to black with broad reddish orange lateral margins. . . . . *heliocarpusi*, new species
– Femora not primarily fuscous to black . . 22
22. Coloration of apex of clypeus almost same as remainder of head 23
– Apex of clypeus red to dark fuscous contrasting with remainder of head 25
23. Hemelytron with pale, evenly distributed, decumbent setae; coloration greenish to yellowish brown tinged with green 24
– Hemelytron primarily glabrous . . . . . *sinaloa* (Carvalho)

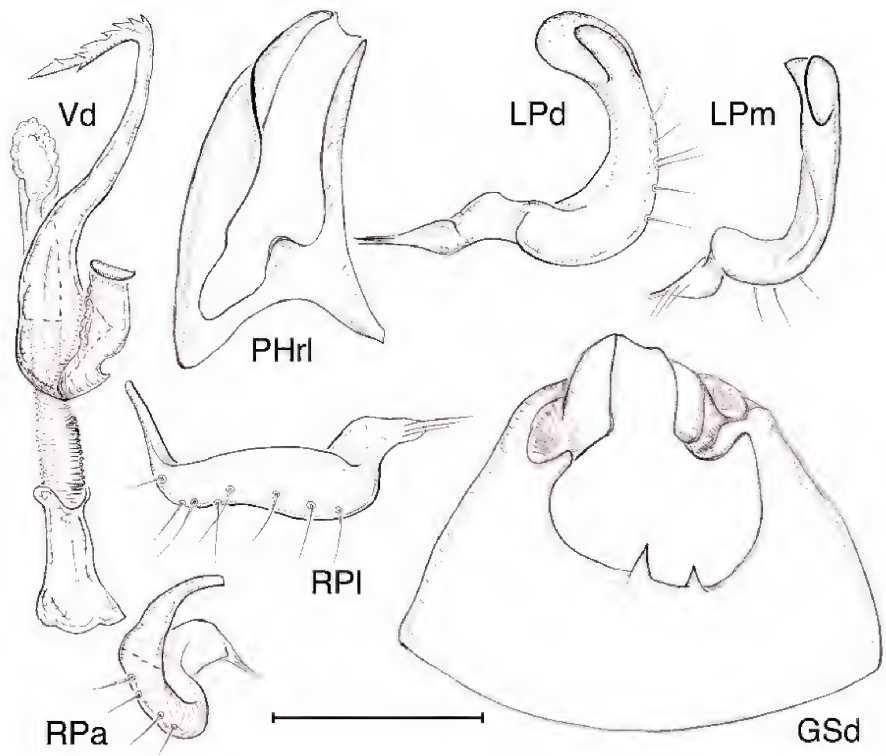

Fig. 11. Male genitalia of *Jornandes albipes* Mazatlan, Sinaloa (AMNH_PBI 00110991); scale = 0.20 mm.

24. Pale greenish or pale yellowish brown; membrane of hemelytron uniformly pale . . . . . *burserae*, new species
– Generally green; membrane of hemelytron with pale fuscous areas *viridulus*, new species
25. Apex of clypeus red; antennal segment II dark fuscous to black; color pattern of hemelytron variable; length 4.37–4.72 . . . . . *variabilis*, new species
– Apex of clypeus not red; (with the exception of some *J. crotoni*); antennal segment II pale to dark; length not exceeding 4.20 26
26. Pronotum brownish yellow with posterior margin pale to almost white; apex of antennal segment I frequently with reddish or reddish fuscous spot; antennal segment II pale with apex dark; hemelytron usually pale fuscous; length 2.40–3.10. . . . . *crotoni*, new species
– Pronotum uniformly brownish orange; apex of antennal segment I with fuscous area; antennal segment II of males dark fuscous, female pale with dark apex; corium of hemelytron nearly fuscous; length 3.12–3.70 . . . . . *lynnae*, new species

Jornandes albipes (Kelton), new combination
Figures 2, 10B, 11

Scalponotatus albipes Kelton, 1969: 17, fig. 4 (orig. desc.); Schuh, 1995: 194 (catalog).

DIAGNOSIS: Recognized by head, pronotum, and hemelytron uniformly dark fuscous to black, antenna, and legs pale yellowish brown (fig. 2); small size; vertex clearly wider than length of antennal segment I; antennal segment II gradually thickened throughout length; labium reaching mesocoxa; width of pronotum greater than length of antennal segment II; microtrichia extending onto metepisternum dorsal to evaporatorium of scent gland. Similar to *J. zapotecas* in its small size and general coloration. The vertex of the head of *J. albipes* is dark fuscous to black whereas it is yellowish brown in *J. zapotecas*. The medial region of the genital segment aperture has two small tergal pro-

cesses in *J. albipes*, whereas in *J. zapotecas* the right side of the aperture has a prominent tergal process. Both are among the 10 species having the pronotum and corium uniformly dark fuscous to black.

REDESCRIPTION: *Male*: COLORATION: Dorsum dark fuscous to black with appendages pale yellow except for apex of labium and claws. Head dark fuscous to black, lacking brown areas; antenna pale yellowish brown, labium pale yellow with apex and labrum dark fuscous. Remainder of body including membrane, dark fuscous to black. Legs including coxae, except claws, uniformly pale yellow. Abdomen shining dark fuscous to black. VESTITURE: Body above with scattered semierect setae as long or slightly longer than diameter of antennal segment II; setae on antennal segment II decumbent; antennal segments II–IV with short semierect setae and a few semierect setae clearly longer than diameter of respective segments; decumbent setae on abdomen longer and more densely distributed; membrane of hemelytron without setae; tibial spines longer than diameter of tibia. GENITALIA (fig. 11): **Genital segment** with pair of short, smooth margined, pointed tergal processes located on midline of dorsal margin of aperture; ventroposterior margin of capsule with distal flange; subgenital plate moderately wide distally, projecting dorsal and distal to aperture of capsule. **Left paramere** C-shaped in dorsal view; sensory lobe not produced beyond diameter of paramere; paramere with equal diameter throughout length to expanded mittenlike apex, lateral margin of apex produced ventrally. **Right paramere** size similar to left paramere; somewhat C-shaped; dorsal margin sinuate, body of paramere offset dorsally from base of paramere; apex with small, dorsally directed point. **Phallotheca** small, cone shaped, almost as long as vesical spiculum; aperture moderately widely open from dorsal surface to apex. **Vesica** small; spiculum sinuate on basal half; distal region recurved, marginally serrate with sharply pointed apex, length 1/3 of spiculum body; base of spiculum situated on dorsal surface of ductus seminis, with small, somewhat flattened basal process.

Female: Color and vestiture same as for male.

MEASUREMENTS: *Male* (n = 2; those of holotype given first followed by paratype): Length, 1.75 and 1.90; width, 0.88 and 0.94. Head length, 0.15 and 0.14; width, 0.56 and 0.57; vertex width, 0.28 and 0.29). Length of antennal segment I, 0.14 and 0.15; II, 0.46 and 0.49; III, 0.36 and 0.33; IV, 0.24 and 0.21. Pronotal length, 0.44 and 0.45; width across base, 0.73 and 0.79. Cuneal length, both 0.36; width across base, both 0.36.

Female (n = 3; average followed in parentheses by range): Length, 2.27 (2.16–2.33); width, 1.08 (1.03–1.13). Head length, all 0.16; width, 0.61 (0.59–0.63); vertex width, 0.33 (0.30–0.34). Length of antennal segment I, 0.15 (0.14–0.16); II, 0.50 (0.48–0.51); III, 0.36 (0.35–0.38); IV, 0.24 (0.24–0.25). Pronotal length, 0.49 (0.45–0.54); width across base, 0.87 (0.84–0.92). Cuneal length, 0.36 (0.35–0.38); width across base, 0.26 (0.24–0.29).

DISCUSSION: The structure of the male genitalia suggests a close relationship with *J. zapotecas*. The minute sculpturing of the corium was not mentioned in the original description of Kelton (1969). This is the smallest species of the genus. Two females housed at TAMU have the manuscript name "*Orthotylellus bipunctus*"attached; one (AMNH_PBI 00245384) was designated the holotype, the second (AMNH_PBI 00245385), a paratype. Both specimens are unequivocally identified as *J. albipes*.

HOST PLANT: *Parthenium incanum* HBK (Asteraceae).

DISTRIBUTION: Known from four localities at low elevations of coastal Sinaloa and adjacent Nayarit (fig. 10B).

SPECIMENS EXAMINED: MEXICO: **Nayarit:** Acaponeta, 22.49638°N 105.35944°W, 07 Aug 1964, L. A. Kelton, 1♀ (AMNH_PBI 00112215) (CNC). **Sinaloa:** 5 mi N of Mazatlan, 23.28895°N 106.41666°W, 24 Jul 1964–29 Jul 1964, H. F. Howden, 1♀ (AMNH_PBI 00112214) (CNC). Guasave, 25.56667°N 108.45°W, 18 m, 17 Aug 1964, H. R. Burke and J. Apperson, 1♀ (AMNH_PBI 00245384) (TAMU). Mazatlan, 23.21666°N 106.41666°W, 14 Aug 1965, Burke and J. Meyer, 1♀ (AMNH_PBI 00245385) (TAMU); 06 Aug 1964, L. A. Kelton, *Parthenium incanum* HBK (Asteraceae), Paratype, 1♂ (AMNH_PBI 00111391), 1♀ (AMNH_PBI 00111392), Holotype, 1♂ (AMNH_PBI

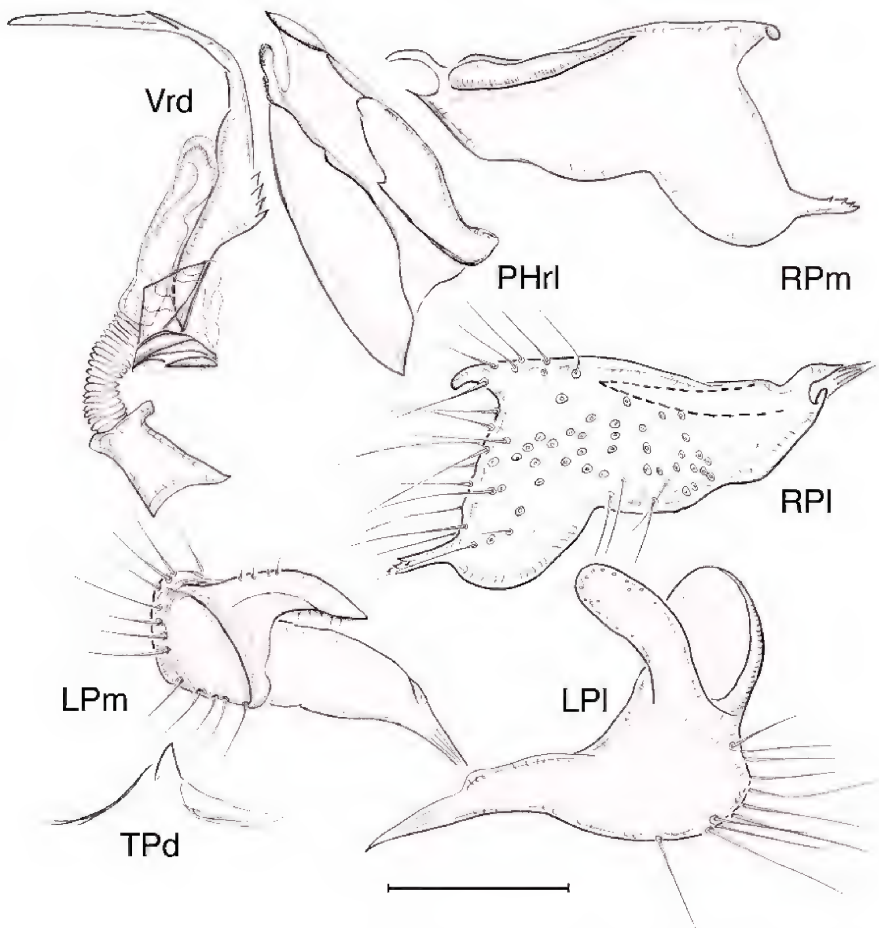

Fig. 12. Male genitalia of *Jornandes ater*, 4.4 mi SW of Acatepec, Puebla (AMNH_PBI 00118192); scale = 0.20 mm.

00112250), 2♂ (AMNH_PBI 00110991, AMNH_PBI 00112212), 1♀ (AMNH_PBI 00112213), Paratype, 3♂ (AMNH_PBI 00112251–AMNH_PBI 00112253), 3♀ (AMNH_PBI 00112254–AMNH_PBI 00112256) (CNC). Paratype, 1♂ (AMNH_PBI 00106466), 1♀ (AMNH_PBI 00106467) (TAMU).

Jornandes ater, new species
Figures 2, 10A, 12

HOLOTYPE: ♂, MEXICO: **Puebla:** 4.4 mi SW of Acatepec [18.98809°N 98.33118°W], July 26, 1974, Clark, Murray, Ashe, Schaffner (AMNH_PBI 00184917). Deposited in the collection of the Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City, D.F.

DIAGNOSIS: Recognized by head dark fuscous to black with limited brown areas contiguous with eyes, remainder of body dark fuscous to black, antennal segment II dark on males, but middle area pale on females (fig. 2); body with short sparse setae; coxa dark, with remainder of legs yellowish brown to brown, hind femur somewhat fuscous; vertex clearly wider than length of antennal segment I; labium short, barely reaching or surpassing procoxa; antennal segment II and III with scattered long erect setae much longer than diameter of segment; pronotum smooth and strongly shining, width of pronotum greater than length of antennal segment II; metepisternum with microtrichia extending dorsal to evaporative area of scent gland. *Jornandes ater* is

distinguished from *J. xochipalensis* on the basis of size, with *J. ater* almost a millimeter longer. In addition, the procoxa is dark in color whereas it is pale in *J. xochipalensis*. The form of the male genitalia of the two species is similar, especially the unique narrow tubelike process at the base of the right paramere; however, other genitalic features are species specific. The form of the paired distal processes of the right paramere, in the left paramere the length of the medial lobe and width of the distal notch, and the presence of a subapical spine on the vesical spiculum differ between *J. ater* and *J. xochipalensis*.

DESCRIPTION: *Male*: COLORATION: Generally dark fuscous to black, legs paler. Head dark fuscous to black with maxillary plate usually pale fuscous; antenna dark fuscous; labium pale to dark fuscous. Except for legs, remainder of body dark fuscous to black. Coxa dark fuscous; trochanters pale yellowish brown, femora and tibiae pale yellowish brown variously with fuscous areas; femora usually dark fuscous but pale at apex. VESTITURE: Head and thorax with short, sparse inconspicuous setae. Setae on antennal segments II–IV mainly short and decumbent but also with a few conspicuous erect, long setae, longer than diameter of respective segments; semierect spines of tibiae as long as or longer than diameter of respective tibia; decumbent setae of abdomen long and denser than on dorsum. GENITALIA (fig. 12): **Genital segment** with small, pointed, medially placed tergal process on dorsal margin of aperture; ventroposterior margin of capsule with flattened flange, subgenital plate narrow distally, slightly projecting beyond aperture of capsule. **Left paramere** stoutly C-shaped in dorsal view; sensory lobe broadly produced, extreme base of paramere with long, narrow process reaching to base of sensory lobe; diameter of paramere constricted medially; apex mittenlike, medial process of apex longer than lateral portion. **Right paramere** stout, similar in size to left paramere; sensory lobe sharply pointed dorsally; diameter of paramere equally thick distal to sensory lobe, terminating in small dorsally directed apical point; base of paramere with narrow, distally directed, tubelike process. **Phallotheca** small, cone shaped, as long as 1/2 of vesical spiculum; aperture open widely on dorsal surface, narrowing to apex. **Vesica** small; spiculum narrow, sinuate, thickened and serrate medially; base situated on dorsal surface of ductus seminis, without process; distal region long, with small subapical spine, needlelike, length 2/3 of spiculum body.

Female: Shorter in length and proportionally broader; otherwise color and vestiture same as for male; antennal segment II pale with both base and apex dark.

MEASUREMENTS: *Male*: (n = 5; those of holotype given first followed in parentheses by average and range): Length, 3.64 (3.65, 3.50–3.76); width, 1.36 (1.42, 1.36–1.48). Head length, 0.22 (0.20, 0.18–0.22); width, 0.76 (0.77, 0.76–0.80); vertex width, 0.36 (0.38, 0.36–0.38). Length of antennal segment I, 0.18 (0.20, 0.18–0.22); II, 0.80 (0.83, 0.80–0.88); III, 0.62 (0.60, 0.56–0.64); IV, 0.26 (0.24, 0.22–0.26). Pronotal length, 0.60 (0.60, 0.58–0.60); width across base, 1.22 (1.29, 1.22–1.34). Cuneal length, 0.66 (0.71, 0.66–0.76); width across base, 0.52 (0.52, 0.50–0.52).

Female (n = 5; average followed in parentheses by range): Length, 3.25 (3.16–3.34); width, 1.57 (1.52–1.68). Head length, 0.25 (0.22–0.28); width, 0.78 (0.76–0.80); vertex width, 0.42 (0.40–0.44). Length of antennal segment I, 0.20 (0.18–0.22); II, 0.68 (0.66–0.72); III, 0.45 (0.44–0.46); IV, 0.27 (0.24–0.30). Pronotal length, 0.62 (0.60–0.64); width across base, 1.30 (1.26–1.38). Cuneal length, 0.56 (0.54–0.58); width across base, 0.53 (0.52–0.54).

DISCUSSION: This species shares several characters with *J. xochipalensis* separating the two of them from other species of the genus. Both are slightly flattened and have very similar color patterns with a highly polished and shining head and pronotum. The antennal segment II of both species has a few erect setae that are usually twice as long as the diameter of the segment. Both species have a short labium that extends to the apex of the procoxa. Microtrichia are present on the metepisternum dorsal of the evaporatorium. The coxae of both species exhibit conspicuous pollinose areas formed by fields of microtrichia.

HOST PLANT: Unknown.

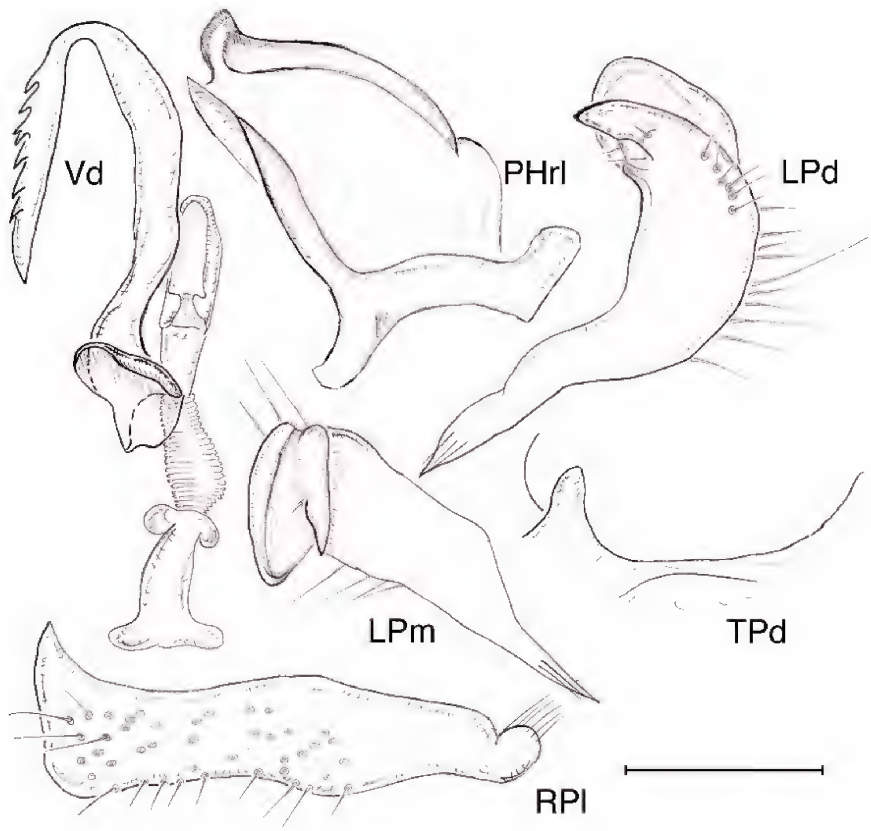

Fig. 13. Male genitalia of *Jornandes brailovskyi*, 18.2 mi S of Iguala, Guerrero (AMNH_PBI 00118202); scale = 0.20 mm.

ETYMOLOGY: Named for its predominately black coloration.

DISTRIBUTION: Known only from the type locality in southwestern Puebla (fig. 10A).

PARATYPES: MEXICO: **Puebla:** 4.4 mi SW of Acatepec, 18.98809°N 98.33118°W, 26 Jul 1974, Clark, Murray, Ashe, Schaffner, 1♂ (AMNH_PBI 00119087), 1♀ (AMNH_PBI 00094277) (AMNH). 2♂ (AMNH_PBI 00094278, AMNH_PBI 00118192), 1♀ (AMNH_PBI 00119088) (CNC). 2♂ (AMNH_PBI 00184783, AMNH_PBI 00245158), 3♀ (AMNH_PBI 00184784–AMNH_PBI 00184786) (TAMU).

Jornandes brailovskyi, new species
Figures 2, 10A, 13

HOLOTYPE: ♂, MEXICO: **Guerrero:** 18.2 mi S of Iguala [17.5739°N 100.36666°W], elev. 3,000 ft [914 m], July 5, 1987, Kovarik, Schaffner (AMNH_PBI 00184918). Deposited in the collection of the Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City, D.F.

DIAGNOSIS: Recognized by body, except for brown spot near eye, dark fuscous to black, antenna pale yellowish brown to pale fuscous, segment II darker apically (fig. 2), basal segment of labium reddish fuscous; pro- and mesocoxa pale, all femora dark fuscous to black with pale apices; body with scattered decumbent setae; vertex clearly wider than antennal segment I; labium almost extending to mesocoxa; width of pronotum greater than length of antennal segment II; metepisternum with microtrichia extending dorsal to evaporatorium of scent gland.

Sometimes superficially similar to *J. genetivus* in coloration, but the total body length is

shorter (2.90–3.20 as compared with 3.84–4.70 for *genetivus*), the body conformation is convex as opposed to elongate in *genetivus*, and the vesical spiculum and parameres of the two spp. are clearly of a different form (compare fig. 13 with fig. 21).

DESCRIPTION: *Male*: COLORATION: Dorsum dark fuscous to black with paler coloration on areas of head and appendages. Head dark fuscous to black with pale brown spot of variable size on frons touching each eye; antennal segment I pale brown with fuscous subapical ring, segment II pale brown, dark fuscous apically, segments III and IV pale brown to fuscous; labium with basal segment and apex of labium dark reddish fuscous. Except for legs, remainder of insect dark fuscous to black; coxa and trochanter of prothoracic leg pale yellowish brown, mesocoxa fuscous basally, pale brown distally, mesotrochanter pale brown, femora on all legs dark fuscous to black except apices which are pale yellowish brown; tibiae and tarsi, except for dark apex, pale yellowish brown. VESTITURE: Head and thorax, except for appendages, with short mostly decumbent setae more or less evenly distributed, sparse; setae not longer than diameter of antennal segment II; setae on antennal segments II–IV not longer than diameter of respective segment; semierect setae of tibiae as long or slightly longer than diameter of respective tibia; decumbent setae of abdomen long and more dense. GENITALIA (fig. 13): **Genital segment** with short, smooth-margined, relatively blunt tergal process located far right of midline on dorsal margin of aperture; ventroposterior margin of capsule with small notch, subgenital plate narrow distally, slightly projecting beyond aperture of capsule. **Left paramere** C-shaped in dorsal view; sensory lobe not produced beyond diameter of paramere; diameter expanded to subapical constriction, then expanded to mittenlike apex, apical notch deep. **Right paramere** relatively elongate, slightly longer than left paramere; dorsal margin sinuate, distal region with small lobe ventrally and sharp point dorsally. **Phallotheca** small, cone shaped, almost as long as vesical spiculum; aperture sinuate, open widely from dorsal surface to narrowed apex. **Vesica** moderately large, sinuate, thickened medially; base wide, situated on dorsal surface of ductus seminis, with process broad, flattened, truncate; distal region long, recurved with one serrate, branch, length 2/3 of spiculum body.

Females: Color and vestiture as on male.

MEASUREMENTS: *Male* (n = 4; holotype given first followed in parentheses by average and range): Length, 2.90 (2.96, 2.90–3.04); width, 1.52 (1.55, 1.52–1.62). Head length, 0.22 (0.20, 0.18–0.22); width, 0.84 (0.86, 0.84–0.88); vertex width, 0.34 (0.35, 0.34–0.36). Length of antennal segment I, 0.20 (0.21, 0.20–0.22); II, 0.90 (0.87, 0.84–0.90); III, 0.68 (0.64, 0.60–0.68); IV, 0.30 (all). Pronotal length, 0.62 (0.65, 0.62–0.68); width across base, 1.22 (1.24, 1.22–1.28). Cuneal length, 0.48 (0.50, 0.48–0.52); width across base, 0.50 (0.52, 0.50–0.54).

Female (n = 11; average followed in parentheses by range): Length, 3.06 (2.94–3.20); width, 1.71 (1.60–1.84). Head length, 0.19 (0.18–0.22); width, 0.86 (0.84–0.88); vertex width, 0.40 (0.40–0.42). Length of antennal segment I, 0.20 (0.18–0.20); II, 0.81 (0.76–0.84); III, 0.58 (0.54–0.62); IV, 0.30 (0.28–0.32). Pronotal length, 0.68 (0.66–0.72); width across base, 1.32 (1.30–1.36). Cuneal length, 0.51 (0.46–0.52); width across base, 0.50 (0.48–0.52).

DISCUSSION: The cuticular sculpturing is somewhat faint but visible in *J. brailovskyi*. The general appearance is much like that of several species belonging to the genus *Scalponotatus*, especially *S. albicornis* Kelton, but the L-shaped left paramere with a simple non-mittenlike apex is unlike any species of *Jornandes*. Although this species exits the key with *J. genetivus*, the two species are not closely related which a cursory examination of body size and male genitalia will clarify.

HOST PLANT: Unknown.

ETYMOLOGY: Name in honor of H. Brailovsky A., well known heteropterist from Mexico.

DISTRIBUTION: Known only from the type locality in Guerrero (fig. 10A).

PARATYPES: MEXICO: **Guerrero:** 18.2 mi S of Iguala, 17.5739°N 100.36666°W, 914 m, 05 Jul 1987, Kovarik and Schaffner, 1♂ (AMNH_PBI 00119107) (AMNH). 1♂ (AMNH_PBI 00118202), 1♀ (AMNH_PBI

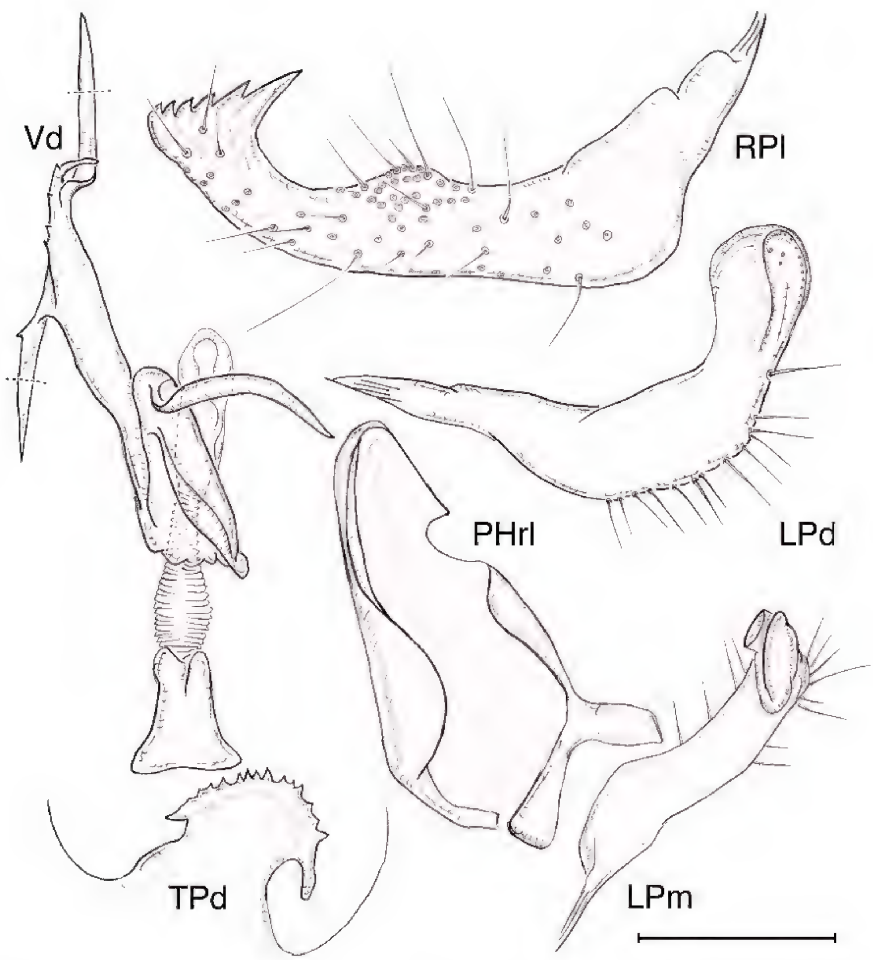

Fig. 14. Male genitalia of *Jornandes burserae*, 12 mi S of Izucar de Matamoros, Puebla (AMNH_PBI 00118196); scale = 0.20 mm; apices of spiculum reconstructed.

00119108) (CNC). 11♀ (AMNH_PBI 00106434–AMNH_PBI 00106443, AMNH_PBI 00245157) (TAMU).

Jornandes burserae,
new species
Figures 2, 10B, 14

HOLOTYPE: ♂, MEXICO: **Puebla:** 14 mi N of Acatlan [19.00658°N 97.90422°W, 2262 m], August 12, 1978, Plitt and Schaffner, Taken on *Bursera submoniliformis* Engl., det. Oswaldo Tellez [19]'97 (AMNH_PBI 00184919). Deposited in the collection of the Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City, D.F.

DIAGNOSIS: Recognized by body pale greenish to pale yellowish brown dorsally, antennal segments pale to pale fuscous, clypeus pale, underside including legs usually pale yellowish brown (fig. 2); pale semierect setae; vertex width subequal to length of antennal segment I; labium not reaching mesocoxa; width of pronotum greater than length of antennal segment II; metepisternum dorsal to evaporative area of scent gland without microtrichia. Similar to *J. viridulus,* but *J. burserae* is distinguished by the pale greenish or pale yellowish brown with the membrane of the hemelytron uniformly pale, whereas *J. viridulus* is darker green and the membrane has pale fuscous to fuscous areas.

The males of both species have similar genitalia with respect to the right paramere, phallotheca, and vesica, which are not found in the other spp. of *Jornandes*.

DESCRIPTION: *Male*: COLORATION: Generally pale yellowish brown to pale green with few fuscous markings. Clypeus pale, antennal segments pale yellowish brown, sometimes pale fuscous; labium pale with dark fuscous apex. Remainder of body yellowish brown, frequently pale green; apical tarsomere dark fuscous, membrane of hemelytron pale. VESTITURE: Head, disc of pronotum, scutellum, and corium with semierect setae, most of which are longer than diameter of antennal segment II; pleural regions of thorax with sparse, short decumbent setae on antennal segments II–IV not longer than diameter of respective segments; spines on tibiae slightly longer than diameter of respective tibia; decumbent setae of abdomen longer and more dense. GENITALIA (fig. 14): **Genital segment** with broad, truncate, serrate, crestlike, medially placed tergal process on dorsal margin of aperture; ventroposterior margin of capsule smoothly notched, distal width of subgenital plate narrow, slightly projecting distal to aperture of capsule. **Left paramere** C-shaped in dorsal view; roughly of equal diameter, narrowed before expanded mittenlike apex. **Right paramere** approximately 1/4 longer than left paramere, elongate with sinuate dorsal margin of sensory lobe, distal half of paramere with truncate, spinose apex. **Phallotheca** conical, subequal in length to vesical spiculum; aperture open widely on middorsal surface to apex; left margin with notch to accommodate medial spine of spiculum. **Vesica** with long, sinuate, trifurcate spiculum, base sinuate; situated on dorsal surface of ductus seminis; apex of trunk of spiculum with long, needlelike branch on right side [broken in preparation]; middle of apex with short, recurved branch, needlelike branch just basal to apex of spiculum [broken in preparation]; base of spiculum with long, narrow recurved branch.

Female: Color and vestiture same as for male.

MEASUREMENTS: *Male* (n = 20; those of holotype given first followed in parentheses by average and range): Length, 3.80 (3.82, 3.56–4.00); width, 1.46 (1.47, 1.42–1.52). Head length, 0.22 (0.20, 0.18–0.22); width, 0.80 (0.80, 0.78–0.82); vertex width, 0.32 (0.31, 0.28–0.32). Length of antennal segment I, 0.30 (0.29, 0.28–030); II, 1.08 (1.08, 1.02–1.16); III, 0.80 (0.75, 0.68–0.82); IV, 0.28 (0.28, 0.24–0.36). Pronotal length, 0.66 (0.64, 0.60–0.66); width across base, 1.18 (1.20, 1.16–1.24). Cuneal length, 0.76 (0.74, 0.68–0.76); width across base, 0.50 (0.49, 0.46–0.52).

Female (n = 20; average given first followed in parentheses by range): Length, 3.87 (3.00–4.10); width, 1.56 (1.46–1.64). Head length, 0.23 (0.20–0.24); width, 0.80 (0.76–0.82); vertex width, 0.34 (0.32–0.36). Length of antennal segment I, 0.29 (0.28–0.30); II, 1.07 (1.04–1.10); III, 0.75 (0.70–0.82); IV, 0.29 (0.26–0.34). Pronotal length, 0.64 (0.60–0.66); width across base, 1.25 (1.16–1.30). Cuneal length, 0.71 (0.64–0.78); width across base, 0.52 (0.50–0.54).

DISCUSSION: This species is similar to *J. viridulus*. Characters common to both species include: usually some greenish coloration; lack of fuscous coloration on apex of clypeus, maxillary plate, and antenna; vertex width and length of antennal segment I more or less subequal; semierect setae on dorsum longer than those found on most species of the genus; and flattened corium.

It is probable that all specimens were pale green at the time of collecting, but some have lost the greenish tint in preservation. Five additional males, conspecific with the holotype, are excluded from the paratype series because of their poor condition due to alcohol preservation. This species and *J. viridulus* are the only pale yellowish brown or pale green species known in the genus. The cuticular sculpturing is more difficult to see than in most species.

HOST PLANT: *Bursera submoniliformis* Engl. (Burseraceae).

ETYMOLOGY: Named for the plant genus from which some of the specimens were taken.

DISTRIBUTION: Known from five localities in southeastern Puebla and Guerrero (fig. 10B).

PARATYPES: MEXICO: **Guerrero:** 6 mi E of Xochipala, 17.7936°N 99.54263°W, 1067 m, 18 Jul 1984, Carroll, Schaffner,

Friedlander, 1♂ (AMNH_PBI 00244358) (TAMU). **Puebla:** 12 mi S of Izucar de Matamoros, 18.52794°N 98.46689°W, 1280 m, 21 Jul 1984, Carroll, Schaffner, Friedlander, 1♂ (AMNH_PBI 00119095), 1♀ (AMNH_PBI 00244346) (AMNH). 1♂ (AMNH_PBI 00118196), 3♀ (AMNH_PBI 00094293–AMNH_PBI 00094294, AMNH_PBI 00119096) (CNC). 12♂ (AMNH_PBI 00244321–AMNH_PBI 00244332), 24♀ (AMNH_PBI 00244333–AMNH_PBI 00244345, AMNH_PBI 00244347–AMNH_PBI 00244357) (TAMU). 14 mi N of Acatlan, 19.00658°N 97.90422°W, 2262 m, 12 Aug 1978, Plitt and Schaffner, *Bursera submoniliformis* Engl. (Burseraceae), 7♂ (AMNH_PBI 00244280–AMNH_PBI 00244286), 12♀ (AMNH_PBI 00244287–AMNH_PBI 00244298) (TAMU). 14.5 mi SE of Acatlan, 18.9095°N 97.763°W, 2035 m, 21 Jul 1981, Bogar, Schaffner and Friedlander, 5♂ (AMNH_PBI 00244299–AMNH_PBI 00244303), 6♀ (AMNH_PBI 00244304–AMNH_PBI 00244309) (TAMU). 2.1 mi S of Coxcatlan, 18.23613°N 97.15°W, 10 Jul 1981, Bogar, Schaffner and Friedlander, *Bursera submoniliformis* Engl. (Burseraceae), 1♂ (AMNH_PBI 00244310) (AMNH). *Bursera submoniliformis* Engl. (Burseraceae), 1♂ (AMNH_PBI 00094292) (CNC). *Bursera submoniliformis* Engl. (Burseraceae), 8♂ (AMNH_PBI 00244311–AMNH_PBI 00244318), 2♀ (AMNH_PBI 00244319, AMNH_PBI 00244320) (TAMU).

OTHER SPECIMENS EXAMINED: MEXICO: **Guerrero:** 6 mi E of Xochipala, 17.7936°N 99.54263°W, 1067 m, 18 Jul 1984, J. B. Woolley, 4♂ (AMNH_PBI 00245317–AMNH_PBI 00245319, AMNH_PBI 00245331) (TAMU); 13 Jul 1985, J. B. Woolley and G. Zolnerowich, 1♂ (AMNH_PBI 00244359) (TAMU).

Jornandes ceibae, new species
Figures 2, 10A, 15

HOLOTYPE: ♂, MEXICO: **Puebla:** 2.1 mi S of Coxcatlan [18.23613°N 97.15°W], July 10, 1981, Bogar, Schaffner, Friedlander, Taken on *Ceiba parvifolia* Rose, det. Oswaldo Tellez [19]'90 (AMNH_PBI 00184920). Deposited in the collection of the Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City, D.F.

DIAGNOSIS: Recognized by antennal segment I being primarily the same yellowish-brown color as head, remaining segments dark fuscous, scutellum pale, mesoscutum usually partially exposed, corium pale with area on claval suture, claval commissure, and radial vein fuscous (fig. 2); setae on hemelytron decumbent; eye large in male; length of antennal segment I subequal to vertex width, antennal segment II subequal in length to width of pronotum; labium not reaching mesocoxa; costal margins of corium subparallel; metepisternum dorsal to evaporative area of scent gland with microtrichia. The patterned dorsum and head, antennal coloration, sexually dimorphic eye size, and certain features of the male genitalia (see generic discussion) are shared with *J. susanae*. Distinguished from *J. susanae* by its pale yellowish-brown scutellum, which is dark fuscous in *J. susanae*. There are also other color differences (compare figs. 2 and 3) and species specific male genitalic characteristics.

DESCRIPTION: *Male*: COLORATION: Head yellowish brown, maxillary plate and clypeus pale fuscous to fuscous; basal antennal segment same color as head, remaining three segments dark fuscous; labium pale, dark fuscous at apex. Pronotum pale yellowish brown with callus usually about same color as head; posterior corners and posterior edge of sides of pronotum ventral to coxa very narrowly dark fuscous, area dorsal to coxa also dark fuscous; xyphus dark fuscous; meso- and metapleura shining dark fuscous to black; evaporatorium of scent gland dark fuscous. Mesoscutum black. Scutellum pale yellowish brown. Corium pale yellowish brown with claval suture and often with all margins of clavus pale fuscous to dark fuscous; radial vein variously fuscous; fuscous area immediately anterior to cuneal suture; cuneus pale with apex fuscous to dark fuscous; membrane pale basally, apical third dark fuscous; basal half of areolar vein pale, remaining vein dark fuscous. Coxae, trochanters and femora pale except for one or two pale fuscous areas on apex of hind femora, tibiae slightly darker, tarsi fuscous to dark fuscous. Abdomen dark fuscous to black. VESTITURE: Head and thorax except for

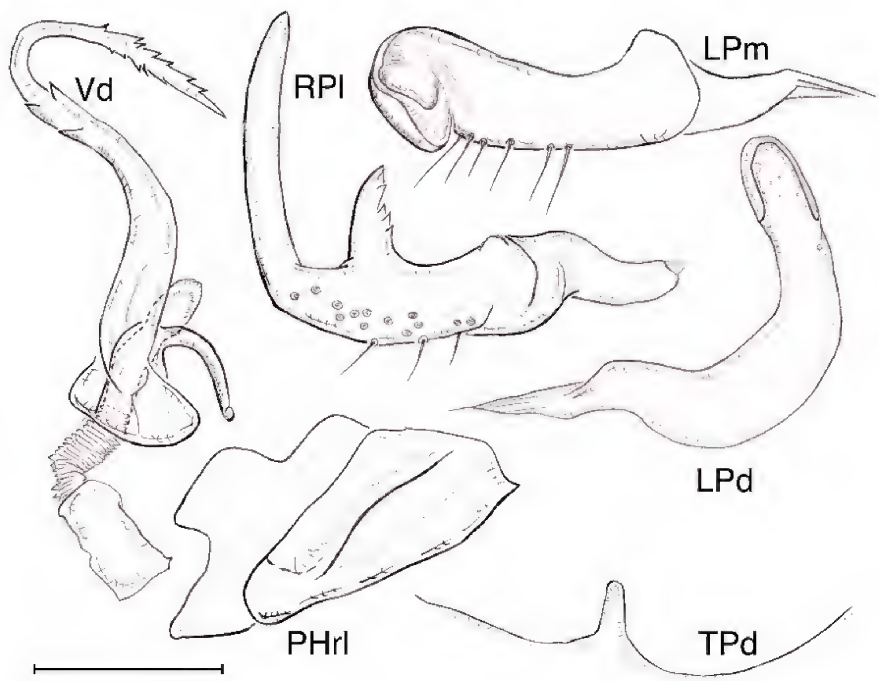

Fig. 15. Male genitalia of *Jornandes ceibae*, 2.1 mi S of Coxcatlan, Puebla (AMNH_PBI 00118194); scale = 0.20 mm.

appendages, with short, mainly sparse decumbent setae, more or less evenly distributed on corium, setae not longer than diameter of antennal segment II; setae on antennal segment II–IV not longer than diameter of respective segment; semierect setae of tibiae about as long as diameter of respective tibia; decumbent setae on abdomen longer and more dense than on dorsum. GENITALIA (fig. 15): **Genital segment** with short, smooth margined medially placed tergal process on dorsal margin of aperture; ventroposterior margin of capsule notched, subgenital plate asymmetrically placed near left paramere fossa, moderately wide distally, projecting dorsal to aperture of capsule. **Left paramere** C-shaped in dorsal view; with even diameter throughout, apex mittenlike with medial and lateral sides narrowly adjacent. **Right paramere** similar in size to left paramere, C-shaped in apical view; sensory lobe sharply pointed dorsally; diameter of paramere equally thick distal to sensory lobe, terminating in long, pointed, dorsally directed apex. **Phallotheca** elongate, cone shaped, as long as 2/3 of vesical spiculum; aperture open narrowly on dorsal surface to narrow apex. **Vesica** moderately large; spiculum, strongly sinuate, practically S-shaped, slightly thickened and serrate medially; recurved distal branch serrate, reaching to about 1/2 of body of spiculum; base of spiculum, situated on dorsal surface of ductus seminis, with strongly recurved, sinuate, sharply pointed basal process.

Female: Vertex width slightly greater than length of antennal segment I, coloration and vestiture same as for male.

MEASUREMENTS: *Male* (n = 20; those of holotype given first followed in parentheses by average and range): Length, 3.84 (3.69, 3.44–3.86); width, 1.24 (1.31, 1.22–1.38). Head length, 0.22 (0.21, 0.18–0.22); width, 0.86 (0.84, 0.80–0.88); vertex width, 0.28 (0.27, 0.26–0.28). Length of antennal segment I, 0.30 (0.29, 0.26–0.32); II, 1.08 (1.11, 1.02–1.18); III, 0.86 (0.83, 0.78–0.86); IV, 0.36 (0.31, 0.28–0.36). Pronotal length, 0.58 (0.57, 0.52–0.62); width across base, 1.12 (1.10, 1.02–1.14). Cuneal length, 0.66 (0.66, 0.62–0.68); width across base, 0.44 (0.44, 0.40–0.46).

Female (n = 20; average given first followed in parentheses by range): Length, 3.67 (3.48–3.82); width, 1.39 (1.28–1.46).

Head length, 0.21 (0.18–0.24); width, 0.79 (0.76–0.82); vertex width, 0.33 (0.30–0.34). Length of antennal segment I, 0.29 (0.26–0.32); II, 1.00 (0.96–1.04); III, 0.75 (0.70–0.78); IV, 0.32 (0.30–0.36). Pronotal length, 0.59 (0.54–0.62); width across base, 1.14 (1.06–1.18). Cuneal length, 0.64 (0.62–0.66); width across base, 0.45 (0.40–0.46).

DISCUSSION: This species is easily recognized by its color pattern, which is most similar to that of *J. susanae*. Even though they share the same basic coloration, the dark areas differ between the two species on the scutellum and adjacent clavus, and the width of band emanating from the radial vein. The antennal coloration is identical in having a pale first segment followed by dark fuscous segments; both have the vertex width subequal to the length of antennal segment I and the length of antennal segment II is subequal to the width of the pronotum; both have the fuscous head band formed by the maxillary plate and the apex of the clypeus. The sculpturing is easily seen. A few specimens have two or three setae on the hemelytral membrane. *Jornandes ceibae* and *J. susanae* share the following features of the male genitalia: medially placed tergal process, left paramere C-shaped with relatively equal diameter throughout and a small apical notch, and vesica with similarly curved and laterally serrate distal region.

HOST PLANT: *Ceiba parvifolia* Rose (Malvaceae, formerly Bombacaceae).

ETYMOLOGY: Named after the genus of the host plant from which the specimens were taken.

DISTRIBUTION: Known from four localities in Oaxaca and Puebla (fig. 10A).

PARATYPES: MEXICO: **Oaxaca:** 2.1 mi NW of Totolapan, 16.68826°N 96.32254°W, 11 Jul 1981–17 Jul 1981, Bogar, Schaffner and Friedlander, 1♂ (AMNH_PBI 00185298) (TAMU). **Puebla:** 13.3 mi NE of Tehuitzingo, 18.35°N 98.2833°W, 1078 m, 13 Jul 1974–14 Jul 1974, Clark, Murray, Ashe, Schaffner, 1♂ (AMNH_PBI 00185299) (TAMU). 2.1 mi S of Coxcatlan, 18.23613°N 97.15°W, 10 Jul 1981, Bogar, Schaffner and Friedlander, *Ceiba parvifolia* Rose (Malvaceae), 1♀ (AMNH_PBI 00094287) *Ceiba parvifolia* Rose (Malvaceae), 1♂ (AMNH_PBI 00119091) (AMNH). *Ceiba parvifolia* Rose (Malvaceae), 2♂ (AMNH_PBI 00094285, AMNH_PBI 00094286), 1♀ (AMNH_PBI 00094288) *Ceiba parvifolia* Rose (Malvaceae), 1♂ (AMNH_PBI 00118194) *Ceiba parvifolia* Rose (Malvaceae), 1♀ (AMNH_PBI 00119092) (CNC). *Ceiba parviflora* Rose (Malvaceae), 27♂ (AMNH_PBI 00185300–AMNH_PBI 00185326), 33♀ (AMNH_PBI 00106575–AMNH_PBI 00106579, AMNH_PBI 00185327–AMNH_PBI 00185354) (TAMU). 8 km NE of Zinacantepec, 18.38833°N 97.21°W, 1440 m, 01 Aug 1995, T. J. Henry and E. Barrera, 13♂ (AMNH_PBI 00133891–AMNH_PBI 00133903), 14♀ (AMNH_PBI 00133904–AMNH_PBI 00133917) (USNM).

Jornandes championi Distant
Figures 1F, 2, 10A

Jornandes championi Distant, 1884: 301, pl. 29, fig. 9 (orig. desc.); Atkinson, 1890: 48 (catalog); Carvalho, 1958: 80 (catalog); Carvalho and Dolling, 1976: 794 (disc. of type); Carvalho, 1981: 4 (note); Schuh, 1995: 127 (catalog).

DIAGNOSIS: Recognized by distinctive coloration with head pale brown with dark fuscous area on vertex, maxillary plate and clypeus dark fuscous, pronotum pale brown with large, dark fuscous spot on disc extending from between calli onto pronotal disc but not reaching the margins, hemelytron generally dark fuscous with paler area, antenna primarily dark fuscous, legs pale yellowish brown (fig. 2); labium reaching apex of procoxa; length of antennal segment I less than vertex width, antennal segment II equal to width of head across eyes and less than pronotal width; metepisternum dorsal to evaporative area of scent gland with microtrichia.

REDESCRIPTION: *Female* (lectotype): COLORATION: Head shining, pale brown with dark fuscous triangular area on vertex; clypeus dark fuscous; maxillary plate fuscous; basal 3/4 of antennal segment I fuscous with apex pale brown; base and apex of segment II dark fuscous, remainder pale fuscous to brown; segments III and IV dark fuscous to almost black; labial segments I and IV dark fuscous, II and III fuscous to brown. Pronotum shining, pale brown with fuscous line between calli that connects posteriorly with

large dark fuscous spot on disc, spot not reaching margins of disc, posterior margin of pronotum pale whitish; ventral sides of pronotum shining dark fuscous. Mesoscutum not visible; scutellum black. Hemelytron generally dark fuscous to black with base and apex of clavus paler; base of corium and area adjacent to basal half of embolium, area anterior to cuneal suture paler in color; cuneus pale in color along cuneal suture, remainder fuscous with outer half slightly paler than inner half; membrane dark fuscous. Basal 2/3 of coxa dark fuscous with apical 1/3 pale brown; femora pale brown with dark fuscous marking on outer margin, remainder pale brown. Underside of entire body shining fuscous to black. VESTITURE: Head with sparsely distributed setae slightly longer than diameter of antennal segment II, with semierect setae longer than diameter of segment, those of III and IV semierect, about as long as diameter of respective segments. Pronotal vestiture sparse. Setae of hemelytron very sparse and short, semierect; tibiae with some spinelike setae longer than the diameter of tibia.

MEASUREMENTS: *Female* (lectotype): Length, 2.86; width, 1.48. Head length, 0.28; width, 0.82; vertex width, 0.40. Length of antennal segment I, 0.16; II, 0.82; III, 0.64; IV, 0.32. Pronotal length, 0.64; width across base, 1.24. Cuneal length, 0.44; width at base, 0.50.

DISCUSSION: The lectotype of *J. championi* was made available for study by the Natural History Museum, London. The large dark fuscous spot on the pronotum distinguishes this species from others placed in *Jornandes*. The type species of *Jornandes* is known from the female lectotype only. We have been unable to associate any male specimen examined during the course of this study with the lectotype. Lacking male genitalic characters for the type species we have relied on external features to assign species to *Jornandes*. All the included species have the distinctive minute sculpturing on the corium and clavus, relatively short labium, and declivous head as found in *J. championi*.

HOST PLANT: Unknown.

DISTRIBUTION: Known from the type locality in Guatemala, the only non-Mexican record for the genus (fig. 10A).

SPECIMEN EXAMINED: GUATEMALA: "La Mercedes [14.7°N 91.75°W, 914 m], 3000 ft., Champion." Lectotype, 1♀ (AMNH_PBI 00085377) (BMNH).

Jornandes crotoni new species
Figures 2, 10B, 16

HOLOTYPE: ♂, MEXICO: **Oaxaca:** 2.7 mi NW of El Cameron [16.59606°N 96.03866°W, 787 m], July 14, 1971, Clark, Murray, Hart, Schaffner (AMNH_PBI 00184921). Deposited in the collection of the Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City, D.F.

DIAGNOSIS: Recognized by small size; general coloration brown to yellowish brown with hemelytron brown to dark fuscous; thorax and most of head yellowish brown; antennal segment I pale with reddish to fuscous spot near apex, II–IV pale with apex dark fuscous; legs pale (fig. 2); vertex wider than length of antennal segment I; labium reaching or nearly reaching metacoxa; width of pronotum greater than length of antennal segment II; glabrous with only a few scattered setae on pronotum and hemelytron; corium weakly hyaline, embolium clearly demarcated; metepisternum dorsal to evaporative area of scent gland with microtrichia; genital segment of male without tergal process.

DESCRIPTION: *Male*: COLORATION: Generally brown or yellowish brown with hemelytron and scutellum ranging from pale brown to dark fuscous. Head pale brown with maxillary plate reddish or brownish orange, apical half of clypeus dark fuscous or sometimes red; antennal segment I pale with red or fuscous tinged with red spot near apex, remaining segments pale basally, dark fuscous apically; labium generally pale with apex dark fuscous. Pronotum pale brown or yellowish brown often with reddish coloration, posterior margin pale; mesopleuron pale brown, sternum usually darker; metapleuron pale brown or brown, sometimes with pleuron including evaporative area pale fuscous. Mesoscutum and scutellum brown to dark fuscous. Corium yellowish brown to fuscous or dark fuscous, base of corium

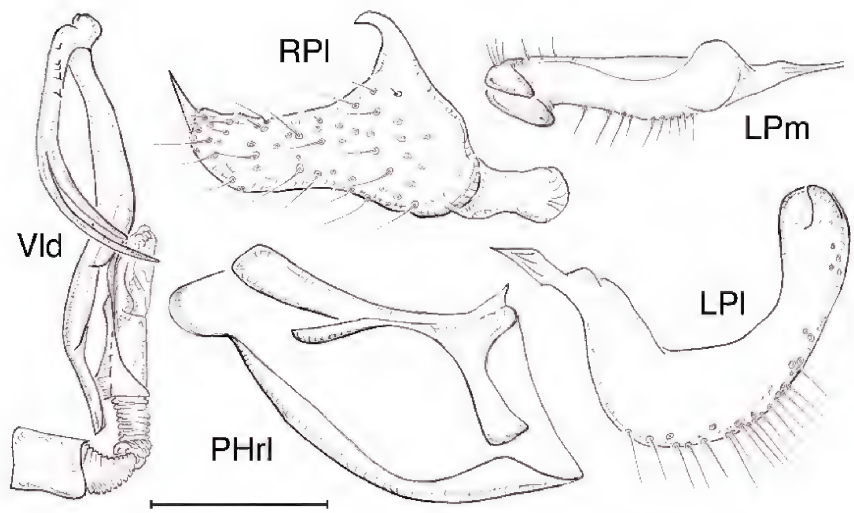

Fig. 16. Male genitalia of *Jornandes crotoni*, 10 mi E of Totolapan, Oaxaca (AMNH_PBI 00118210); scale = 0.20 mm.

yellowish brown, membrane dark fuscous. Legs pale, femora frequently with reddish longitudinal line. Abdomen ranging from pale brown to brown with fuscous areas. VESTITURE: Head and thorax, except for appendages, shining, almost devoid of setae; scutellum and corium with very short, sparse decumbent setae most easily seen on embolium; setae on antennal segments II–IV decumbent, length not longer than diameter of respective segments; semierect setae of tibiae as long or slightly longer than diameter of respective tibia; decumbent setae of abdomen long and more dense. GENITALIA (fig. 16): **Genital segment** without tergal processes on dorsal margin of aperture; ventroposterior margin of capsule with acute notch, subgenital plate narrow distally, slightly projecting beyond aperture of capsule. **Left paramere** C-shaped in dorsal view; sensory lobe not produced, diameter of paramere with roughly equal thickness throughout, slightly narrowed subapically to mitten- shaped apex. **Right paramere** similar in size to left paramere; sensory lobe sharply pointed dorsally; diameter of paramere equally thick distal to sensory lobe, terminating in small apical point. **Phallotheca** small, cone shaped, as long as vesical spiculum; aperture sinuate, open from right side to just left of apex. **Vesica** small; spiculum narrow, sinuate, thickened medially; base situated on dorsal surface of ductus seminis, without basal process; distal region narrow serrate at base of bifurcate, strongly recurved apex, branches of recurved region smooth reaching to middle of spiculum trunk.

Female: Color and vestiture same as for male.

MEASUREMENTS: *Male* (n = 20; those of holotype given first followed in parentheses by average and range): Length, 2.80 (2.68, 2.40–2.94); width, 1.32 (1.35, 1.28–1.44). Head length, 0.14 (0.16, 0.14–0.20); width, 0.70 (0.70, 0.68–0.72); vertex width, 0.34 (0.33, 0.32–0.34). Length of antennal segment I, 0.20 (0.20, 0.18–0.22); II, 0.72 (0.74, 0.66–0.80); III, 0.54 (0.56, 0.50–0.62); IV, 0.28 (0.31, 0.28–0.34). Pronotal length, 0.56 (0.59, 0.50–0.66); width across base, 1.08 (1.10, 1.02–1.16). Cuneal length, 0.50 (0.50, 0.48–0.52); width across base, 0.48 (0.48, 0.44–0.50).

Female (n = 20; average given first followed in parentheses by range): Length, 2.91 (2.66–3.10); width, 1.45 (1.30–1.56). Head length, 0.18 (0.14–0.24); width, 0.72 (0.68–0.74); vertex width, 0.36 (0.34–0.36). Length of antennal segment I, 0.20 (0.18–0.22); II, 0.78 (0.70–0.84); III, 0.55 (0.52–0.62); IV, 0.32 (0.28–0.36). Pronotal length, 0.61 (0.50–0.66); width across base, 1.15 (1.02–1.24). Cuneal length, 0.50 (0.48–0.52); width across base, 0.49 (0.44–0.56).

DISCUSSION: *J. crotoni* is one of the smallest species of the genus. The coloration

of antennal segments II–IV, in which the bases of all segments are pale and the apices are a contrasting dark fuscous, distinguishes this species from all others. The maxillary plate of most specimens is tinted red instead of fuscous. The color of the hemelytra is variable, but the base of the corium is pale, similar to that of *J. nathani*. The color variation of the corium necessitated this species exit the key in two places. The specimens having the paler corium are frequently teneral. The sculpturing is easily seen and a few individuals have setae on the membrane of the hemelytron.

HOST PLANT: *Croton alamosanus* Rose (Euphorbiaceae).

ETYMOLOGY: Named after the plant genus from which individuals of this species have been taken.

DISTRIBUTION: Known from five localities in south-central Oaxaca northward to southern Puebla (fig. 10B).

PARATYPES: MEXICO: **Oaxaca:** 10 mi E of Totolapan, 16.66661°N 96.1482°W, 1219 m, 20 Jul 1987, Kovarik and Schaffner, 2♂ (AMNH_PBI 00118210, AMNH_PBI 00119085), 1♀ (AMNH_PBI 00119086) (CNC). 9♂ (AMNH_PBI 00106537–AMNH_PBI 00106545), 16♀ (AMNH_PBI 00106546–AMNH_PBI 00106561) (TAMU). 2.1 mi NW of Totolapan, 16.68826°N 96.32254°W, 11 Jul 1981–17 Jul 1981, Bogar, Schaffner and Friedlander, *Croton alamosanus* Rose (Euphorbiaceae), det. Oswaldo Tellez 1990, 1♀ (AMNH_PBI 00094276) (CNC). *Croton alamosanus* Rose (Euphorbiaceae), det. Oswaldo Tellez 1990, 1♀ (AMNH_PBI 00094275), 4♀ (AMNH_PBI 00245160–AMNH_PBI 00245163) *Croton alamosanus* Rose (Euphorbiaceae), det. Oswaldo Tellez 1990. 8♂ (AMNH_PBI 00106518–AMNH_PBI 00106525), 11♀ (AMNH_PBI 00106526–AMNH_PBI 00106536) (TAMU). 2.7 mi NW of El Camaron, 16.59606°N 96.03866°W, 787 m, 21 Jul 1974–22 Jul 1974, Clark, Murray, Ashe, Schaffner, 1♂ (AMNH_PBI 00094274) (AMNH). 5♂ (AMNH_PBI 00106504–AMNH_PBI 00106508), 8♀ (AMNH_PBI 00106509–AMNH_PBI 00106516) (TAMU); 24 Jul 1973, Mastro and Schaffner, Light Trap, 1♀ (AMNH_PBI 00106517) (TAMU); 14 Jul 1971, Clark, Murray, Hart, Schaffner, 1♂ (AMNH_PBI 00094273), 1♀ (AMNH_PBI 00106488) (AMNH). 1♂ (AMNH_PBI 00094272) (CNC). 16♂ (AMNH_PBI 00106472–AMNH_PBI 00106485, AMNH_PBI 00106501–AMNH_PBI 00106502), 14♀ (AMNH_PBI 00106486–AMNH_PBI 00106487, AMNH_PBI 00106489–AMNH_PBI 00106500) (TAMU); 13 Jul 1971, Clark, Murray, Hart, Schaffner, Light Trap, 1♂ (AMNH_PBI 00106503) (TAMU). 8 mi E of Totolapan, 16.66663°N 96.17856°W, 19 Jul 1987, Kovarik and Schaffner, 1♂ (AMNH_PBI 00106468), 2♀ (AMNH_PBI 00106469, AMNH_PBI 00106470) (TAMU). **Puebla:** 13.7 mi SW of Izucar de Matamoros, 18.50612°N 98.63298°W, 1080 m, 21 Jul 1981, Bogar, Schaffner and Friedlander, 1♀ (AMNH_PBI 00106471) (TAMU).

Jornandes cruralis Distant
Figures 2, 10C, 17–18, 19A

Jornandes cruralis Distant, 1893: 448, pl. 39, fig. 11 (orig. desc.); Carvalho, 1958: 80 (catalog); Carvalho and Dolling, 1976: 795 (disc. of holotype); Carvalho, 1981: 4 (note); Schuh, 1995: 127 (catalog).

DIAGNOSIS: Recognized by relatively large size; head yellowish brown usually with vertex fuscous, maxillary plate and apex of clypeus dark fuscous to black, antenna and legs pale yellowish brown; pronotum and hemelytron dark fuscous to black (fig. 2); glabrous with only a few scattered setae dorsally; antenna and legs pale; labium nearly reaching posterior margin of mesosternum; cuticular sculpturing extending onto pronotum laterally (fig. 17B); length of antennal segment I less than vertex width, antennal segment II less than pronotal width; metepisternum dorsal to evaporative area of scent gland with microtrichia (fig. 17C). *Jornandes cruralis* is similar to *J. genetivus*; nonetheless, these species are easily separated from one another. *Jornandes cruralis* has pale antennae and the cuticular sculpturing is extended onto the pronotum, whereas in *J. genetivus* the antenna is dark fuscous and the cuticular sculpturing of the hemelytron does not extend onto the pronotum. Additionally the male genitalia are diagnostic for each species. The pale yellowish-brown coloration will distinguish *J. sinaloa* from the other two species, all of which share a similar type of male genitalia.

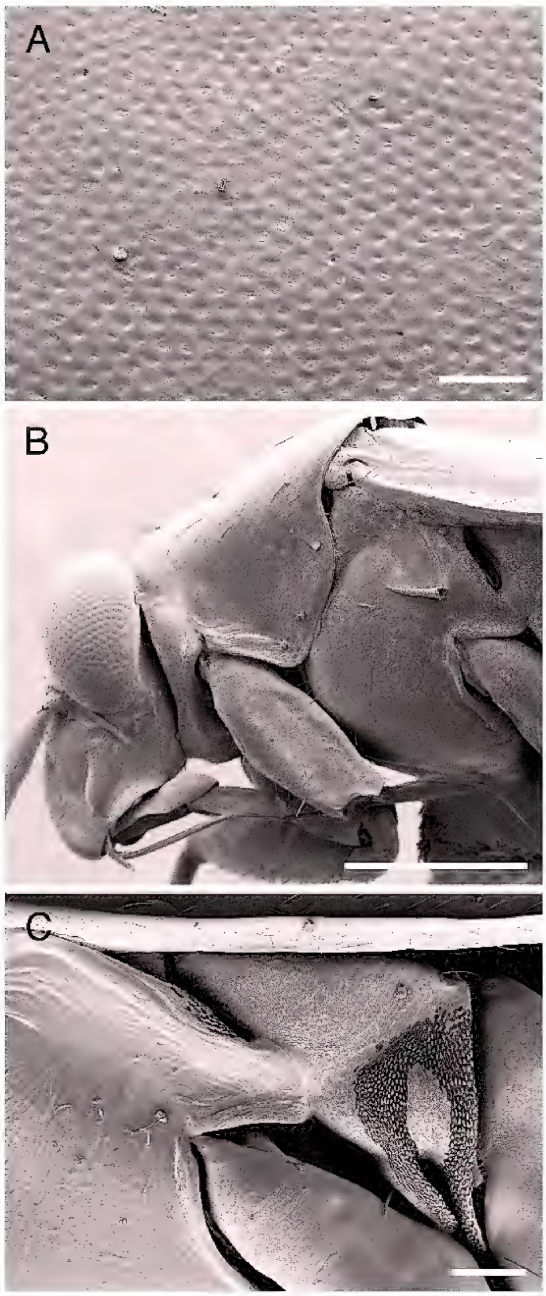

Fig. 17. Scanning electron micrographs of *Jornandes cruralis*, Santa Lucia, Sinaloa (AMNH_PBI 00112223). **A.** Cuticular sculpturing of corium, dorsal view; scale = 0.05 mm. **B.** Head and thorax, lateral view; scale = 0.50 mm. **C.** Mesothoracic spiracle and metathoracic scent-efferent system, lateral view; scale = 0.10 mm.

REDESCRIPTION: *Male*: COLORATION: Head shining yellowish brown, usually with a pale fuscous area on vertex; fuscous to black band extending from maxillary plate across apex of clypeus, and around to other eye, sometimes infuscate on sulcate portion of vertex, stripe on frons between antennal fossa and vertex infuscate; antenna pale yellowish brown with base of segment I fuscous; labium yellow, apex dark fuscous. Pronotum, scutellum and mesoscutum shining dark fuscous to black. Hemelytron with corium shining dark fuscous to black; membrane fuscous with narrow pale area immediately along cuneus. Underside of thorax shining dark fuscous or black except for posterior margin of scent gland evaporatorium, which is yellowish brown; underside of abdomen shining dark fuscous to black. Legs yellowish brown (same color as antenna and posterior area of evaporatorium) with apical tarsomeres pale fuscous. VESTITURE: Body as seen from above shining, almost devoid of setae. Head with sparsely distributed, short setae; antennal segment I with a few scattered setae, remaining segments covered with short decumbent setae. Pronotum glabrous, setae commonly decumbent and located along lateral margins; meso- and metapleurae with scattered erect setae; hemelytron with short decumbent setae located along costal margin and on or near cuneus; underside of abdomen with moderately sparsely distributed semierect setae. GENITALIA (fig. 18): **Genital segment** with broad, crestlike, serrate tergal process projecting from right of midline on dorsal margin of aperture; ventroposterior margin of capsule with broad notch; distal width of subgenital plate wide, strongly projecting dorsal to aperture of capsule. **Left paramere** C-shaped in dorsal view; with broad sensory lobe; diameter of paramere gradually expanded to subapical constriction, then expanded to wide, deeply notched mittenlike apical region. **Right paramere** elongate, slightly more than twice length of left paramere; diameter of paramere widest basally and subapically, distal region gradually tapered to dorsally projecting apex; distal region serrate and with several strong spines. **Phallotheca** elongate, conical, 1/3 length of spiculum; aperture large, widely open from dorsal surface to apex. **Vesica** with long, medially

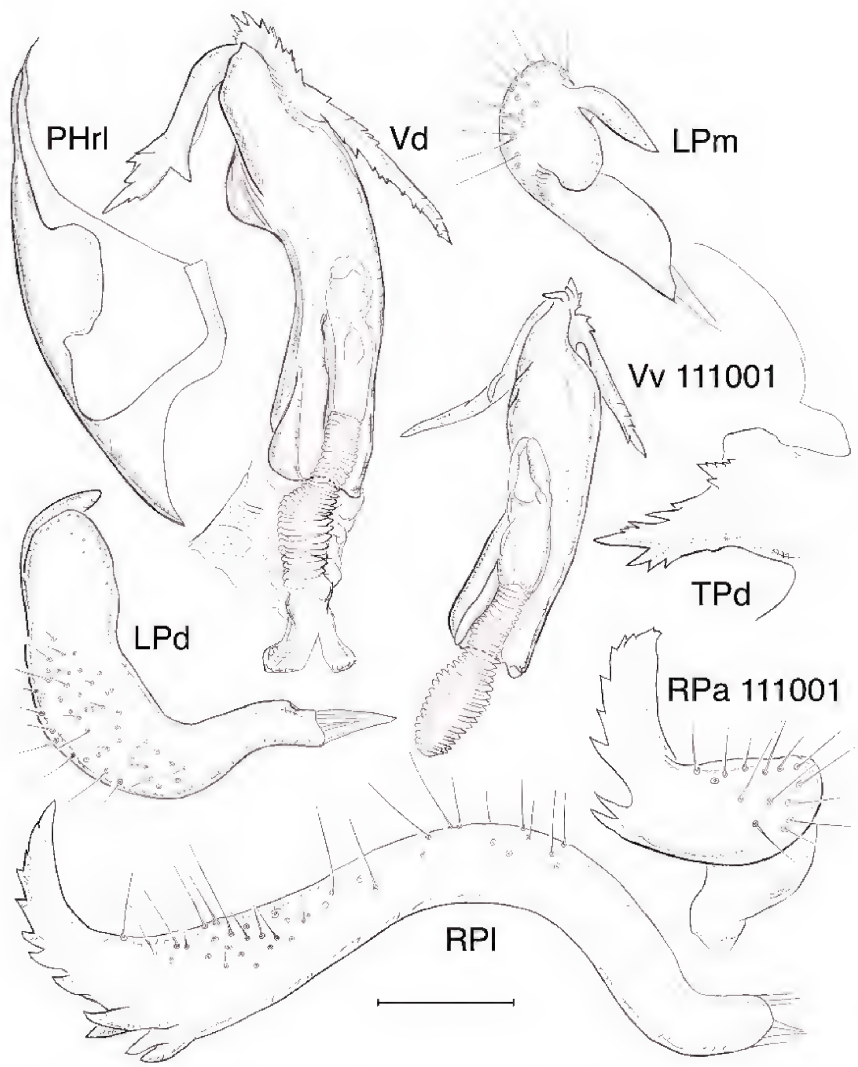

Fig. 18. Male genitalia of *Jornandes cruralis*, 22 mi N of Chilpancingo, Guerrero (AMNH_PBI 00110992), Santa Lucia, Sinaloa (AMNH_PBI 00111001); scale = 0.20 mm.

thickened spiculum; apical region of spiculum bifurcate with recurved, narrow, apically pointed, strongly serrate branches; base of spiculum sinuate, broadly affixed to dorsal margin of ductus seminis, without basal spine.

Female: Coloration and vestiture same as for male, except for more ovate body. GENITALIA with ventral margin of VLP not produced ventrally into VUL; SR moderately large, compressed along longitudinal axis; medial region of DLP moderately produced medially; posterior wall with well-sclerotized, convex medial section; IRL deeply incised on ventral margin (fig. 19A), with dorsal portion shorter than narrow, pointed ventral portion; otherwise as in generic description.

MEASUREMENTS: *Male*: (n = 13; average given first followed in parentheses by range): Length, 4.28 (3.85–5.00); width, 1.77 (1.62–2.00). Head length, 0.28 (0.24–0.34); width, 0.94 (0.89–1.02); vertex width, 0.43 (0.41–0.46). Length of antennal segment I, 0.36 (0.32–0.40); II, 1.40 (1.32–1.50); III, 1.10 (1.00–1.21); IV, 0.44 (0.36–0.51). Pronotal length, 0.88 (0.84–0.92) width across base,

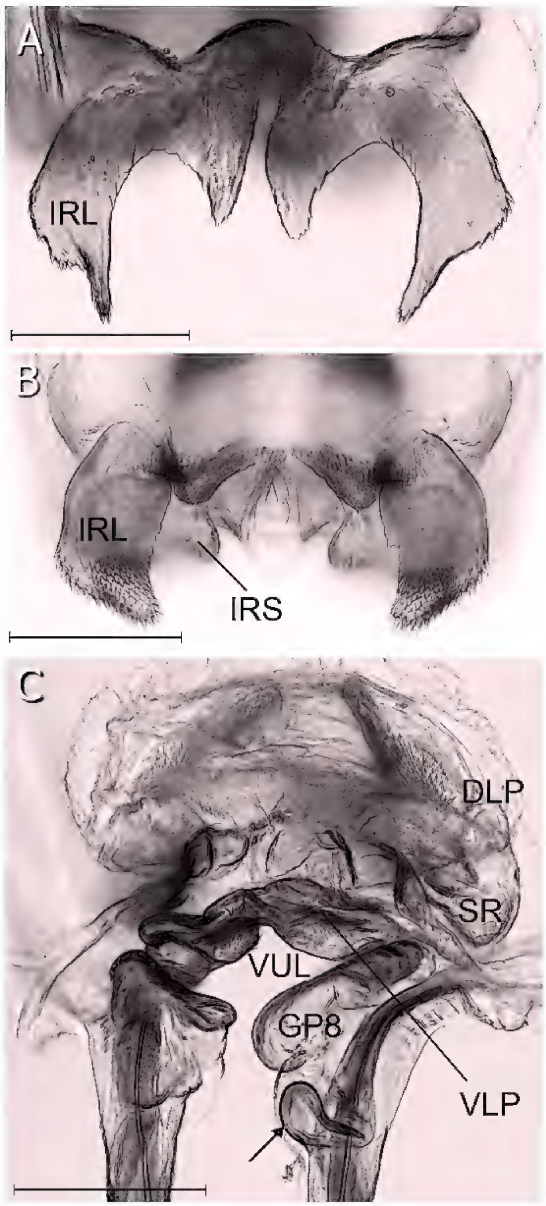

Fig. 19. Female genitalia of *Jornandes* spp. A–B. Posterior wall, posterior view. **A.** *J. cruralis*, Santa Lucia, Sinaloa (AMNH_PBI 00112243). **B.** *J. genetivus*, Chila, Puebla (AMNH_PBI 00112923). **C.** *J. tehuacanensis*, 6 mi SW of Tehuacan, Puebla (AMNH_PBI 00119090), gonapophyses 8, ventral view; arrow towards tubercle on GP8. Scales = 0.20 mm.

1.46 (1.36–1.62). Cuneal length, 0.71 (0.65–0.84); width across base, 0.63 (0.60–0.68).

Female: (n = 13; those of holotype given first followed in parentheses by average and range). Length, 4.22 (4.17, 3.80–4.36); width, 1.92 (1.89, 1.76–2.08). Head length, 0.30 (0.31, 0.26–0.36); width, 0.94 (0.92 and 0.96); vertex width, 0.48 (0.48, 0.45–0.50). Length of antennal segment I, 0.30 (0.34, 0.30–0.38); II, 1.30 (1.33, 1.22–1.50); III missing on holotype (0.99, 0.91–1.13); IV, 0.40, 0.36–0.46. Pronotal length, 0.88 (0.88, 0.84–0.96); width across base, 1.46 (1.45, 1.36–1.61). Cuneal length, 0.64 (0.64, 0.58–0.71); width across base, 0.60 (0.60, 0.58–0.62).

DISCUSSION: The single specimen from near La Laguna, Guerrero, differs somewhat in head color from all others. The center of the vertex and frons is dark brown with areas along the eyes in the more typical yellowish brown.

The male genitalia of the Guerrero specimens differs in the following characteristics from those from Sinaloa: tergal process deflected into genital aperture and slightly more serrate, left paramere longer, and vesical spiculum with longer more serrate apical branches. We are treating the Guerrero and Sinaloa specimens as conspecific pending additional material from intervening localities, which may clarify the variation we have encountered in the male genitalia.

Jornandes cruralis shares a number of significant characters with *J. genetivus*. Both species are almost devoid of setae as seen from above, including the costal margin of the hemelytron. The cuticular sculpturing is more easily seen than in most species of the genus. Both species are essentially the same size, and the color of *J. cruralis* is similar to that of males of *J. genetivus* that have the dark fuscous to black pronotum.

The male genitalia of both of these species and those of the pale *J. sinaloa* indicate a close relationship. The IRL of *J. cruralis* and *J. sinaloa* are similar in that both have the ventral margin deeply incised (fig. 19A), whereas in *J. genetivus* the ventral margin is practically entire (fig. 19B). Both *J. cruralis* and *J. sinaloa* are distributed predominately on the western coastal plain or "buried ranges" of Mexico, with *J. sinaloa* in the

northernmost part in Sinaloa and Sonora and *J. cruralis* in south of Sinaloa. The southern populations of *J. cruralis* in Guerrero and Morelos seem to overlap some of the distribution of *J. genetivus*. These species were found together at one poorly documented collecting event in the environs of Chilpancingo. Whether they were contemporaneously in similar habitat or at equal elevation remains to be determined.

HOST PLANT: *Ipomoea murucoides* Roem and Schult (Convolvulaceae).

DISTRIBUTION: Known from 12 localities in Durango, Guerrero, Morelos, and Sinaloa (fig. 10C).

SPECIMENS EXAMINED: MEXICO: **Durango:** El Salto, 23.79522°N 105.36357°W, 2578 m, 19 Sep 1976, J. Carayon, 1♀ (AMNH_PBI 00243972) (MNHN). **Guerrero:** 1 mi NE of La Laguna, 19.91028°N 101.75586°W, 17 Jul 1984, Carroll, Schaffner, Friedlander, 1♂ (AMNH_PBI 00106416) (TAMU). 10.3 mi S of Iguala, 17.70023°N 100.36666°W, 23 Jul 1981, Bogar, Schaffner and Friedlander, *Ipomoea murucoides* Roem and Schult (Convolvulaceae), 1♂ (AMNH_PBI 00094261) (CNC). *Ipomoea murucoides* Roem and Schult (Convolvulaceae), 2♀ (AMNH_PBI 00106417, AMNH_PBI 00106418) *Ipomoea murucoides* Roem and Schult. (Convolvulaceae), 1♂ (AMNH_PBI 00119112) (TAMU). 22 mi N of Chilpancingo, 17.96733°N 99.58776°W, 643 m, 24 Aug 1958, H. F. Howden, 1♂ (AMNH_PBI 00110992) (CNC). 6.2 mi SW of Xochipala, 1728 m, 17.75291°N 99.68363°W, 13 Jul 1985, Jones and Schaffner, 1♀ (AMNH_PBI 00094262) (CNC). "Chilpancingo, Guerrero. [17.55°N 99.5°W, 1402 m], 4600 ft., Aug., H. H. Smith", Holotype, 1♀ (AMNH_PBI 00085376) (BMNH); 24 Jul 1961, R. and K. Dreisbach, 2♀ (AMNH_PBI 00133592, AMNH_PBI 00134074) (USNM). **Morelos:** 10 km NE of Yautepec, 18.94464°N 99.0035°W, 1439 m, 13 Sep 1983, H. Brailovsky, 3♀ (AMNH_PBI 00245166–AMNH_PBI 00245168) (UNAM). Yautepec, 18.88333°N 99.06667°W, 1216 m, 13 Jul 1963, F. D. Parker and L. A. Stange, 1♂ (AMNH_PBI 00245170) (UCB). **Sinaloa:** 13 mi E of Concordia, 23.28319°N 105.861°W, 244 m, 05 Aug 1964, L. A. Kelton, 2♀ (AMNH_PBI 00112248, AMNH_PBI 00112249) (CNC); 09 Aug 1964, L. A. Kelton, 2♀ (AMNH_PBI 00112244, AMNH_PBI 00112245) (CNC). 27 mi E of Villa Union, 23.35201°N 106.03997°W, 276 m, 26 Jul 1964, H. F. Howden, 2♀ (AMNH_PBI 00112246, AMNH_PBI 00112247) (CNC); 26 Jul 1964, J. Powell, 1♂ (AMNH_PBI 00119228) (UCB). Mazatlan, 23.21666°N 106.41666°W, 20 Sep 1976, J. Carayon, 1♂ (AMNH_PBI 00243968), 2♀ (AMNH_PBI 00243970, AMNH_PBI 00243971), 1♀ (AMNH_PBI 00243969) (MNHN). Santa Lucia, 23.49755°N 105.92295°W, 1219 m, 04 Aug 1964, L. A. Kelton, 10♂ (AMNH_PBI 00111001, AMNH_PBI 00112216–AMNH_PBI 00112224), 19♀ (AMNH_PBI 00112225–AMNH_PBI 00112243) (CNC).

Jornandes genetivus (Distant), new combination
Figures 2, 10C, 19B, 20–21

Eccritotarsus genetivus Distant, 1884: 284, pl. 22, fig. 25 (orig. desc.); Atkinson, 1890: 42 (catalog).

Rhinocapsidea genetiva: Reuter, 1908: 54; Carvalho, 1952: 79; Carvalho 1958: 79 (catalog); Carvalho and Dolling, 1976: 798 (disc. of lectotype); Carvalho and Wallerstein, 1978: 254 (note); Schuh, 1995: 191 (catalog).

DIAGNOSIS: Recognized by the body entirely dark fuscous to black (some males) or with dorsum of head and pronotum yellowish brown with remainder of body dark fuscous to black (females, some males), antennal segments dark brown to fuscous, femora pale yellowish brown, tibiae brown, tarsi dark fuscous to black (fig. 2); labium not reaching posterior margin of mesosternum, male with vertex width subequal to length of antennal segment I, width clearly longer in female; width of pronotum more or less subequal with length of antennal segment II; metepisternum dorsal to evaporative area of scent gland with microtrichia (fig. 20C). This species shares several significant characters, including the male genitalia, with *J. cruralis* and *J. sinaloa*. All, as seen from above, are almost devoid of setae including on the costal margin of the hemelytron. The cuticular sculpturing on the hemelytron is prominent and very easy to see. All are about equal in size. The similarity in color between *J. genetivus* and *J. cruralis* pertains to those

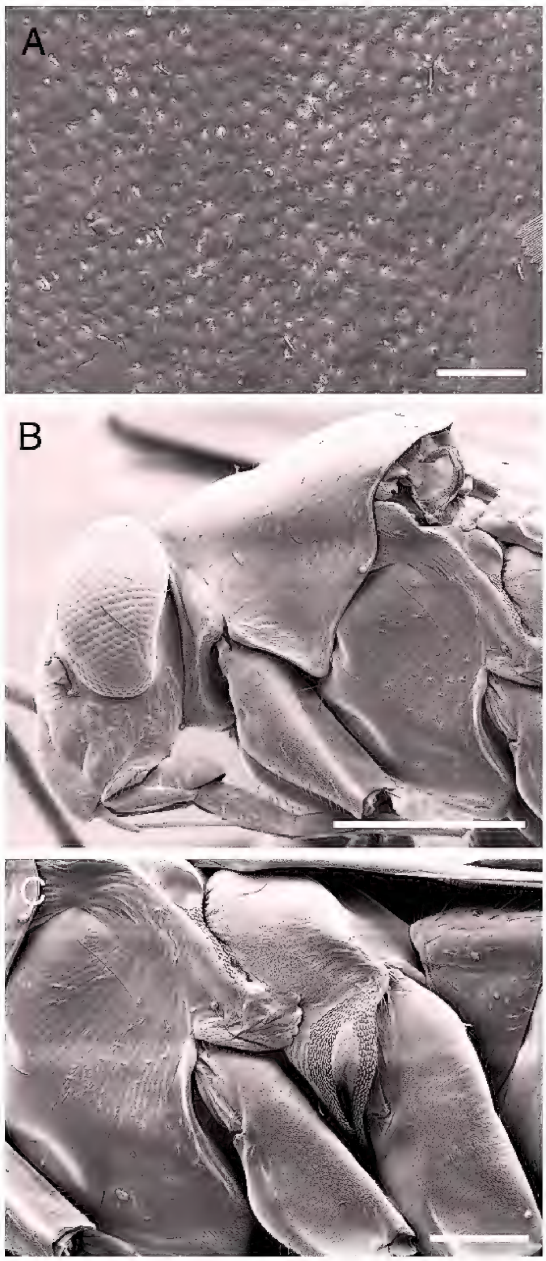

Fig. 20. Scanning electron micrographs of *Jornandes genetivus*, Huajuapan, Oaxaca (AMNH_PBI 00112920). **A.** Cuticular sculpturing of corium, dorsal view; scale = 0.05 mm. **B.** Head and thorax, lateral view; scale = 0.50 mm. **C.** Mesothoracic spiracle and metathoracic scent-efferent system, lateral view; scale = 0.20 mm.

males of *J. genetivus* that have a uniformly dark fuscous to black pronotum. The antenna of *J. genetivus* is dark fuscous whereas it is pale in *J. cruralis* and *J. sinaloa*. The last species is conspicuously uniformly pale yellowish brown.

REDESCRIPTION: *Male*: COLORATION: Generally body either entirely dark fuscous to black or frequently with dorsum of head and pronotum yellowish brown with remainder of body dark fuscous to black. Head ranging from almost completely yellowish brown (rare) to black with fuscous markings occurring as a spot on vertex near each eye, posterior margin of vertex and basal half of clypeus and adjacent region of frons; antennal segments dark brown to fuscous, segment II sometimes darker than others; labium pale yellow, segment I fuscous at base or sometimes entirely so, apex of labium fuscous. Pronotum usually fuscous to black, dorsum also sometimes yellowish brown. Hemelytron dark fuscous to black; coxa usually pale with base of metacoxa pale, femora pale yellowish brown, tibiae brown, tarsi dark fuscous to black. Abdomen dark fuscous to black. VESTITURE: Body as seen from above glabrous, almost devoid of setae. Head with short sparse setae; segment I of antenna with a few scattered semierect setae, remaining segments covered with short decumbent setae with very few, if any, as long as diameter of segment on which located. Pronotum almost without setae, those present most commonly decumbent and located along lateral margins; meso- and metapleurae with scattered erect setae; hemelytron with short decumbent setae located along costal margin and on or near cuneus; underside of abdomen with moderate numbers of semierect setae. GENITALIA (fig. 21): **Genital segment** with bifurcate tergal process projecting from region slightly to right of midline on dorsal margin of aperture; lateral process smoothly margined, elongate, curved medially with rounded apex, medial base of process with minute dorsal point; ventroposterior margin of capsule with minute notch; distal width of subgenital plate moderately wide, strongly projecting beyond aperture of capsule on right side. **Left paramere** C-shaped in dorsal view; without sensory lobe; diameter of paramere gradually expanded to wide deeply

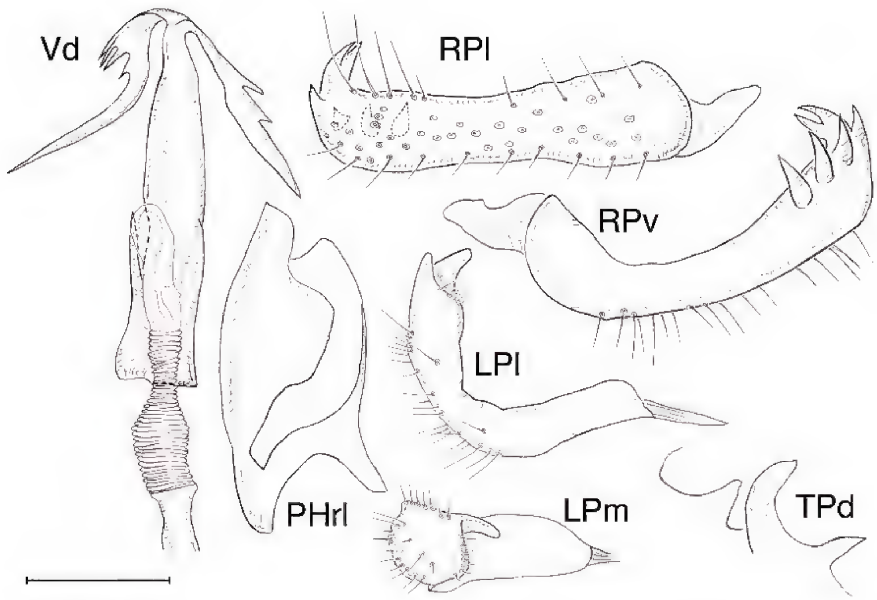

Fig. 21. Male genitalia of *Jornandes genetivus*, Huajuapan, Oaxaca (AMNH_PBI 00112439); scale = 0.20 mm.

notched apical region with small ventral point and wide, rounded dorsolateral margin. **Right paramere** elongate, C-shaped, slightly more than twice length of left paramere; diameter of paramere widest basally, gradually tapered to strongly recurved apex; apex terminating in two small spines; distal region with several stout medial spines. **Phallotheca** elongate conical, 1/3 length of spiculum; aperture large, open on right side, apex, and distal on left side. **Vesica** with one, long medially thickened spiculum, situated on dorsal surface of ductus seminis; apically region of spiculum bifurcate with recurved, flattened, strongly serrate branches reaching to base of spiculum, one branch twice as wide as other; base of spiculum sinuate, broadly affixed to dorsal margin of ductus, base of spiculum with narrow, pointed process behind ductus seminis on left side.

Female: Broader in general appearance than male. COLORATION: Generally body with dorsum of head and dorsum of pronotum, sometimes all of prothorax yellowish brown but with some fuscous coloration on head, remainder of body dark fuscous to black; head ranging from almost entirely yellowish brown (rare) to yellowish brown with limited fuscous areas above, apex of clypeus, maxillary plate, and underside of head dark fuscous to black; segment I of antenna brown, remaining segments usually yellowish brown, darker fuscous apically or segments III and IV uniformly pale fuscous; labium pale yellow, fuscous to black at base of segment I and apex of labium. Pronotum ranging from all yellowish brown (rare) to yellowish-brown coloration limited to dorsum, remainder of body same as male. VESTITURE: Similar to that of males. GENITALIA with strongly sclerotized lateral region of VLP produced anteriorly, ventral margin, not produced ventrally into VUL; SR moderately large, ovoid in longitudinal axis; medial region of DLP relatively small; posterior wall with well-sclerotized, convex medial section with small anterior projection; ventral margin of IRL not deeply incised (fig. 19B) with ventralmost margin blunt; otherwise as in generic description.

MEASUREMENTS: *Male* (n = 20; average followed in parentheses by range): Length, 4.38 (3.94–4.70); width, 1.53 (1.40–1.66). Head length, 0.23 (0.18–0.26); width, 0.91 (0.84–0.92); vertex width, 0.40 (0.38–

0.44). Length of antennal segment I, 0.38 (0.36–0.42); II, 1.41 (1.28–1.54); III, 1.05 (0.96–1.14); IV, 0.44 (0.38–0.50). Pronotal length, 0.70 (0.64–0.74); width across base, 1.36 (1.22–1.44). Cuneal length, 0.72 (0.64–0.80); width across base, 0.51 (0.46–0.54).

Female: (n = 20; average followed in parentheses by range): Length, 4.28 (3.84–4.60); width, 1.79 (1.64–1.90). Head length, 0.28 (0.24–0.32); width, 0.93 (0.90–0.96); vertex width, 0.45 (0.42–0.46). Length of antennal segment I, 0.38 (0.36–0.40); II, 1.45 (1.32–1.58); III, 1.00 (0.92–1.10); IV, 0.47 (0.38–0.50). Pronotal length, 0.75 (0.70–0.84); width across base, 1.41 (1.34–1.52).

DISCUSSION: No other species of *Jornandes* has the type of color variation exhibited by this species. All specimens as seen from above have dark fuscous to black hemelytra. All females have the dorsum of the pronotum yellowish brown that may extend downward to varying degrees onto the propleuron. The majority of the males available for study have the hemelytra and pronotum dark fuscous to black. The head is usually dark fuscous and with a few brown areas. Other males have the pronotum and head yellowish brown as in the female. Rarely the pronotum is mostly dark with yellowish brown limited to a diffuse medial area. The recurved region of the vesical spiculum in Chiapas males is narrower and situated closer to the main body of the spiculum than in the vesical spiculum of specimens from the reminder of the distribution of *J. genetivus*. The vesical spiculum of *J. cruralis*, *J. genetivus*, and *J. sinaloa* are conspicuously bifurcate with broad central trunks and all share apically spinose, elongate right parameres.

The female lectotype is deposited in the Humboldt University Museum in Berlin, Germany. The specimen is teneral, however, the yellowish-brown pronotum, elongate body, and mostly parallel-sided costal margin easily distinguish this species from congeners. The measurements of the lectotype given by Carvalho and Dolling (1976) and as examined by us fit within the range given above.

HOST PLANTS: *Montana tomentosa* Cerv. (Asteraceae), *Ipomoea walcotiana* Rose (Convolvulaceae), and Euphorbiaceae.

DISTRIBUTION: Known from 54 localities from northern Puebla and Mexico state south through Morelos, Guerrero, and Oaxaca with one collection in Chiapas (fig. 10C).

SPECIMENS EXAMINED: MEXICO: **Chiapas:** km 20 Motozintla–Comitan, 15.43324°N 92.12°W, 900 m, 08 Jul 1988, A. Cadena and L. Cervantes, 1♂ (AMNH_PBI 00245155), 1♀ (AMNH_PBI 00245156) (TAMU). **Guerrero:** 4 mi W of Chilpancingo, 17.56992°N 99.56555°W, 1506 m, 15 Jul 1984, Carroll, Schaffner, Friedlander, 1♀ (AMNH_PBI 00245175) (TAMU). 6 mi E of Xochipala, 17.7936°N 99.54263°W, 1067 m, 18 Jul 1984, Carroll, Schaffner, Friedlander, 3♀ (AMNH_PBI 00106432, AMNH_PBI 00245177–AMNH_PBI 00245178) (TAMU). 6 mi NE of Tixtla de Guerrero, 17.64501°N 99.36861°W, 16 Jul 1984, Carroll, Schaffner, Friedlander, 1♂ (AMNH_PBI 00245022), 2♀ (AMNH_PBI 00245023, AMNH_PBI 00245024) (TAMU). Chilpancingo, 17.55°N 99.5°W, 1402 m, 24 Jul 1961, R. and K. Dreisbach, 1♂ (AMNH_PBI 00134073) (USNM). Taxco, 18.55976°N 99.61491°W, 2072 m, 02 Sep 1966, J. and W. Ivie, 1♀ (AMNH_PBI 00108439) (AMNH); 02 Aug 1938, L. J. Lipovsky, 1♀ (AMNH_PBI 00245176) (UCB). **Mexico:** Malinalco, 18.95°N 99.5°W, 1743 m, 26 Jun 1980, Harry Brailovsky, 1♀ (UNAM); 24 Oct 1977, D. Pluot, 1♂ (AMNH_PBI 00243973), 3♀ (AMNH_PBI 00243974–AMNH_PBI 00243976) (MNHN). Tenayuca, 19.5269°N 99.2217°W, 2277 m, 28 Oct 1994, H. Brailovsky and C. Mayorga, 1♀ (AMNH_PBI 00244691) (UNAM). **Morelos:** 10 mi E of Cuernavaca, 18.9166°N 99.09631°W, 30 Jul 1976, Peigler, Gruetzmacher, R&M Murray, Schaffner, 2♀ (AMNH_PBI 00106431, AMNH_PBI 00245043) (TAMU). 12 mi E of Cuernavaca, 18.89741°N 99.06354°W, 1280 m, 12 Aug 1954, R. R. Dreisbach, 1♂ (AMNH_PBI 00121643) (CAS). 4♀ (AMNH_PBI 00114327–AMNH_PBI 00114330) (CNC). 1♀ (AMNH_PBI 00127450) (UMMC); 14 Aug 1954, J. G. Chillcott, 1♂ (AMNH_PBI 00112263), 8♀ (AMNH_PBI 00113158–AMNH_PBI 00113163, AMNH_PBI 00114334–AMNH_PBI 00114335) (CNC); 14 Aug 1954, University of Kansas Mexico Expedition, 1♀ (AMNH_PBI 00117947) (KU). 14 mi S of Cuernavaca, 18.72454°N 99.26772°W, 975 m, 03 Aug 1954, J. G. Chillcott, 2♀ (AMNH_PBI 00112266, AMNH_PBI

00113164) (CNC). 4.4 mi E of Cuernavaca, 18.91665°N 99.18237°W, 06 Jul 1974–08 Jul 1974, Clark, Murray, Ashe, Schaffner, 1♀ (AMNH_PBI 00245042) (TAMU); 27 Jul 1976–29 Jul 1976, Peigler, Gruetzmacher, R. and M. Murray, Schaffner, 1♀ (AMNH_PBI 00245041), 1♂ (AMNH_PBI 00245038), 2♀ (AMNH_PBI 00245039, AMNH_PBI 00245040) (TAMU). Acatlipa, 89 km, 18.81667°N 99.23333°W, 1300 m, 10 Aug 1946, Unknown, 1♀ (AMNH_PBI 00108422) (AMNH). Cuernavaca, 18.91666°N 99.25°W, 15 Aug 1954, R. R. Dreisbach, 3♂ (AMNH_PBI 00127388, AMNH_PBI 00127446–AMNH_PBI 00127447), 2♀ (AMNH_PBI 00127448, AMNH_PBI 00127449) (UMMC); 12 Jul 1961–19 Jul 1961, R. and K. Dreisbach, 2♀ (AMNH_PBI 00134070, AMNH_PBI 00134071) (USNM); 20 Aug 1936, E. D. Ball, 1♀ (AMNH_PBI 00134072) (USNM). El Polvorin, Villa de Ayala, 18.75°N 98.98333°W, 1147 m, 09 Jul 1972, H. Perez, 1♀ (AMNH_PBI 00245173) (TAMU). 1♂ (AMNH_PBI 00244684) (UNAM). km 14 Huautla-Jojutla a 123 Art, 18.54324°N 99.26731°W, 1055 m, 05 Jul 1995, H. Brailovsky and E. Barrera, 1♂ (AMNH_PBI 00244692) (UNAM). **Oaxaca:** 1.1 km N of Hwy 190 (rd to Yagul) 29.5 km E of Oaxaca, 16.98293°N 96.45529°W, 1700 m, 13 Aug 1988, J. K. Liebherr and D. A. Yager, 1♂ (AMNH_PBI 00116224), 1♀ (AMNH_PBI 00116225) (CUIC). 1.1 mi W of El Tule, 16.95676°N 96.81482°W, 1646 m, 17 Jul 1987, Kovarik and Schaffner, 7♂ (AMNH_PBI 00244685–AMNH_PBI 00244686, AMNH_PBI 00245025–AMNH_PBI 00245029), 5♀ (AMNH_PBI 00244687, AMNH_PBI 00245030–AMNH_PBI 00245033) (TAMU). 10 mi N of Miltepec, 16.71209°N 94.61666°W, 04 Aug 1976, Peigler, Gruetzmacher, R&M Murray, Schaffner, 1♂ (AMNH_PBI 00094247) (CNC). *Monarda tomentosa* Cerv. (Asteraceae), 1♂ (AMNH_PBI 00244969), 8♀ (AMNH_PBI 00244970–AMNH_PBI 00244977), 5♂ (AMNH_PBI 00244957–AMNH_PBI 00244961), 7♀ (AMNH_PBI 00244962–AMNH_PBI 00244968) (TAMU); 15 Jul 1971–16 Jul 1971, Clark, Murray, Hart, Schaffner, 1♂ (AMNH_PBI 00112262) (CNC). *Ipomoea walcotiana* Rose (Convolvulaceae), 10♂ (AMNH_PBI 00244842–AMNH_PBI 00244851), 9♀ (AMNH_PBI 00244852–AMNH_PBI 00244860), 10♂ (AMNH_PBI 00244820–AMNH_PBI 00244829), 12♀ (AMNH_PBI 00244830–AMNH_PBI 00244841) (TAMU); 11 Jul 1973–12 Jul 1973, Mastro and Schaffner, 1♂ (AMNH_PBI 00244869) (TAMU); 09 Aug 1980, Schaffner, Weaver, Friedlander, *Ipomoea walcotiana* Rose (Convolvulaceae), 5♂ (AMNH_PBI 00244861–AMNH_PBI 00244865), 1♂ (AMNH_PBI 00244866), 2♀ (AMNH_PBI 00244867, AMNH_PBI 00244868) (TAMU); 15 Jul 1971, Clark, Murray, Hart, Schaffner, 1♂ (AMNH_PBI 02448670) (TAMU). 21 km E of Mitla, 16.94929°N 96.2529°W, 1650 m, 17 Aug 1988, Doyen, 2♀ (AMNH_PBI 00119463, AMNH_PBI 00119464) (UCB). 3.4 mi SE of Matatlan, 16.82948°N 96.3544°W, 1930 m, 06 Aug 1980–07 Aug 1980, Schaffner, Weaver, Friedlander, 3♂ (AMNH_PBI 00245034–AMNH_PBI 00245036) (TAMU). 30 mi NE of Huajuapan de Leon, 18.10746°N 97.74907°W, 1800 m, 28 Jun 1965, Burke, Meyer, Schaffner, 1♀ (AMNH_PBI 00112261) (CNC). *Ipomoea walcotiana* Vasey (Convolvulaceae), 5♀ (AMNH_PBI 00244918–AMNH_PBI 00244922), 9♂ (AMNH_PBI 00244908–AMNH_PBI 00244915, AMNH_PBI 00244917), 1♀ (AMNH_PBI 00244916) (TAMU). 31.3 km SE of Huajuapan de Leon, 17.66531°N 97.5606°W, 2000 m, 11 Aug 1988, J. K. Liebherr and D. A. Yager, 1♀ (AMNH_PBI 00116223) (CUIC). Huajuapan, 17.8°N 97.76667°W, 1633 m, 25 Aug 1969, L. A. Kelton, (Euphorbiaceae), 17♂ (AMNH_PBI 00112259, AMNH_PBI 00112439, AMNH_PBI 00112962, AMNH_PBI 00113205–AMNH_PBI 00113218), 26♀ (AMNH_PBI 00112260, AMNH_PBI 00113219–AMNH_PBI 00113243), 2♂ (AMNH_PBI 00111003, AMNH_PBI 00112920) (CNC). Huajuapan de Leon, 17.8°N 97.76667°W, 1633 m, 17 Sep 1980, Harry Brailovsky, 4♀ (AMNH_PBI 00244680–AMNH_PBI 00244683) (UNAM). 1♀ (AMNH_PBI 00133593) (USNM). Oaxaca, [17.03333°N 96.73333°W], Deppe, Lectotype, 1♀ (ZMHB). **Puebla:** 0.5 km E of Tecamachalco, 18.88333°N 97.705°W, 2070 m, 29 Jul 1995, T. J. Henry and E. Barrera, *Solanum* sp. (Solanaceae), 7♂ (AMNH_PBI 00133548, AMNH_PBI 00133591, AMNH_PBI 00133763–AMNH_PBI 00133767), 20♀ (AMNH_PBI 00133768–AMNH_PBI 00133787) (USNM). 1 mi SW of Zapotitlan, 19.99794°N 97.75225°W, 1293 m, 11 Jul 1973, Mastro and Schaffner, 10♂ (AMNH_PBI 00244923–AMNH_PBI 00244932), 9♀ (AMNH_PBI 00244933–AMNH_PBI 00244941) (TAMU). 1.1 mi W of Acatlan, 18.19999°N

98.06683°W, 13 Jul 1974, Clark, Murray, Ashe, Schaffner, 3♀ (AMNH_PBI 00119131–AMNH_PBI 00119133) (CNC). 1♂ (AMNH_PBI 00244956), 2♀ (AMNH_PBI 00244954, AMNH_PBI 00244955), 8♂ (AMNH_PBI 00244942–AMNH_PBI 00244949), 4♀ (AMNH_PBI 00244950–AMNH_PBI 00244953) (TAMU). 10 mi SE of Tehuitzingo,18.24456°N 98.20488°W, 1189 m, 03 Jul 1953, University of Kansas Mexico Expedition, 1♂ (AMNH_PBI 00108421), 6♀ (AMNH_PBI 00169968-AMNH_PBI 00169973) (AMNH). 4♀ (AMNH_PBI 00117943–AMNH_PBI 00117946) (KU). 11.8 mi NW of Izucar de Matamoros, 18.66106°N 98.62248°W, 1395 m, 13 Jul 1974, Clark, Murray, Ashe, Schaffner, 4♀ (AMNH_PBI 00244715–AMNH_PBI 00244718) (TAMU). 12 mi NW of Petlalcingo, 18.19489°N 98.04667°W, 1219 m, 03 Jul 1953, University of Kansas Mexico Expedition, 1♂ (AMNH_PBI 00117802) (KU). 1♂ (AMNH_PBI 00117942) (KU). 13.7 mi SW of Izucar de Matamoros, 18.50612°N 98.63298°W, 1080 m, 21 Jul 1981, Bogar, Schaffner and Friedlander, 1♀ (AMNH_PBI 00244721) (TAMU). 14 km NE of Zinacantepec, 18.43666°N 97.215°W, 1920 m, 01 Aug 1995, T. J. Henry and H. Brailovsky, 1♂ (AMNH_PBI 00134079) (USNM). 14 mi N of Acatlan, 19.00658°N 97.90422°W, 2262 m, 12 Aug 1978, Plitt and Schaffner, 2♂ (AMNH_PBI 00094265, AMNH_PBI 00094268) (CNC). 10♂ (AMNH_PBI 00244756–AMNH_PBI 00244765), 22♀ (AMNH_PBI 00244769–AMNH_PBI 00244790) (TAMU). 14.4 mi SW of Izucar de Matamoros, 18.5312°N 98.57215°W, 1268 m, 01 Aug 1976, Peigler, Gruetzmacher, R. and M. Murray, Schaffner, 1♀ (AMNH_PBI 00094264) (CNC). 3♂ (AMNH_PBI 00244693–AMNH_PBI 00244695), 14♀ (AMNH_PBI 00244696–AMNH_PBI 00244709) (TAMU). 1♂ (AMNH_PBI 00107581) (USNM). 14.5 mi SE of Acatlan, 18.9095°N 97.763°W, 2035 m, 21 Jul 1981, Bogar, Schaffner and Friedlander, 2♀ (AMNH_PBI 00119116, AMNH_PBI 00119117) (CNC). 14♂ (AMNH_PBI 00244978–AMNH_PBI 00244991), 30♀ (AMNH_PBI 00244992–AMNH_PBI 00245021) (TAMU). 2 km N of Coxcatlan, 18.28307°N 97.15849°W, 960 m, 20 Aug 1988, J. T. Doyen, 1♀ (AMNH_PBI 00119462) (UCB). 3 km al NW de Tecaltzingo, 18.73191°N 97.68368°W, 1890 m, 04 Jul 1995, E. Barrera, 2♀ (AMNH_PBI 00244688, AMNH_PBI 00244689) (UNAM); 13 Aug 1992, E. Barrera and C. Mayorga, 1♀ (AMNH_PBI 00244690) (UNAM). 3 mi N of Petlalcingo, 18.1394°N 97.90568°W, 1465 m, 03 Aug 1963, F. D. Parker and L. A. Stange, 1♂ (AMNH_PBI 00245169) (UCB). 33 km SE of Acatlan, nr Salitrillo, 17.97866°N 97.87666°W, 1500 m, 09 Aug 1988, J. Doyen, 2♂ (AMNH_PBI 00119457, AMNH_PBI 00119531), 8♀ (AMNH_PBI 00119520–AMNH_PBI 00119522, AMNH_PBI 00119532–AMNH_PBI 00119535, AMNH_PBI 00119588) (UCB). 36 km NW of Huajuapan de Leon, 18.07587°N 97.9279°W, 1600 m, 09 Aug 1988, J. K. Liebherr and D. A. Yager, 2♀ (AMNH_PBI 00116226, AMNH_PBI 00116227) (CUIC). 4 mi SW of Acatepec, 18.9922°N 98.32683°W, 21 Jul 1984, Carroll, Schaffner, Friedlander, 2♀ (AMNH_PBI 00094263, AMNH_PBI 00119130) (CNC); 11 Jul 1973, Mastro and Schaffner, 1♂ (AMNH_PBI 00094267) (CNC). 3♂ (AMNH_PBI 00244735–AMNH_PBI 00244737), 4♀ (AMNH_PBI 00244738–AMNH_PBI 00244741) (TAMU). 1♂ (AMNH_PBI 00107582) (USNM). 4 mi W of Acatepec, 19.03332°N 98.34485°W, 12 Aug 1978, Plitt and Schaffner, 3♂ (AMNH_PBI 00244766–AMNH_PBI 00244768), 9♀ (AMNH_PBI 00244791–AMNH_PBI 00244799) (TAMU); 09 Aug 1980, Schaffner, Weaver, Friedlander, *Ipomoea walcotiana* Rose (Convolvulaceae), 2♂ (AMNH_PBI 00244752, AMNH_PBI 00244753), 2♀ (AMNH_PBI 00244754, AMNH_PBI 00244755) (TAMU); 26 Jul 1973, Mastro and Schaffner, 9♂ (AMNH_PBI 00244724–AMNH_PBI 00244732), 2♀ (AMNH_PBI 00244733, AMNH_PBI 00244734) (TAMU). 4.3 mi SW of Acatepec, 19.03229°N 98.28407°W, 2141 m, 16 Jul 1971, Clark, Murray, Hart, Schaffner, 3♀ (AMNH_PBI 00244742–AMNH_PBI 00244744) (TAMU). 4.4 mi SW of Acatepec, 18.98809°N 98.33118°W, 26 Jul 1974, Clark, Murray, Ashe, Schaffner, 13♂ (AMNH_PBI 00244800–AMNH_PBI 00244812), 7♀ (AMNH_PBI 00244813–AMNH_PBI 00244819) (TAMU); 09 Jul 1977, J. C. Schaffner, 6♂ (AMNH_PBI 00094266, AMNH_PBI 00119115, AMNH_PBI 00184939–AMNH_PBI 00184942) (CNC). 57♂ (AMNH_PBI 00118205, AMNH_PBI 00245048–AMNH_PBI 00245103), 51♀ (AMNH_PBI 00245104–AMNH_PBI 00245154) (TAMU); 09 Jul 1981, Bogar, Schaffner and Friedlander, 1♂ (AMNH_PBI 00244745), 1♀ (AMNH_PBI 00244746) (TAMU); 21 Jul 1984, J. B. Woolley, 1♂ (AMNH_PBI 00244747), 2♀ (AMNH_PBI 00244748, AMNH_PBI 00244749)

(TAMU); 24 Jul 1984, Carroll, Schaffner, Woolley, Friedlander, 1♂ (AMNH_PBI 00244750)(TAMU); 21 Jul 1984, Carroll, Schaffner, Friedlander, 19♂ (AMNH_PBI 00244871–AMNH_PBI 00244889), 18♀ (AMNH_PBI 00244890–AMNH_PBI 00244907) (TAMU). 5 km NE of Zinacantepec, 18.37°N 97.21°W, 1290 m, 01 Aug 1995, T. J. Henry and E. Barrera, 2♂ (AMNH_PBI 00133549, AMNH_PBI 00133788), 12♀ (AMNH_PBI 00133789-AMNH_PBI 00133800) (USNM). 5 mi SE of Izucar de Matamoros, 18.54858°N 98.41242°W, 20 Jul 1984, Carroll, Schaffner, Friedlander, 2♀ (AMNH_PBI 00244722, AMNH_PBI 00244723) (TAMU). 6 km S of Chila, 20.27564°N 98.19646°W, 1737 m, 10 Aug 1967, H.R. Burke and J. Hafernik, 1♀ (AMNH_PBI 00245037) (TAMU). 6 mi N of Tehuacan, 18.59464°N 97.4041°W, 1986 m, 22 Aug 1987, J. Doyen, 1♂ (AMNH_PBI 00119460) (UCB). 6 mi SW of Tehuacan, 18.3883°N 97.44836°W, 08 Jul 1973 – 10 Jul 1973, Mastro and Schaffner, 1♂ (AMNH_PBI 00106430) (TAMU); 08 Jul 1981, Bogar, Schaffner and Friedlander, 1♀ (AMNH_PBI 00245047) (TAMU). 6.3 mi N of Tehuacan, 18.53786°N 97.41726°W, 1798 m, 22 Jul 1987, Kovarik and Schaffner, 1♂ (AMNH_PBI 00245044), 1♀ (AMNH_PBI 00245045) (TAMU); 21 Jun 1987, R. Anderson, 1♀ (AMNH_PBI 00245046) (TAMU). 7 mi N of Atlixco, 18.97124°N 98.35886°W, 2168 m, 12 Aug 1957, J. A. Chemsak, B.J. Rannells, 1♂ (AMNH_PBI 00119461), 1♀ (AMNH_PBI 00119589) (UCB). 7.3 mi SW of Izucar de Matamoros, 18.52184°N 98.57917°W, 22 Jul 1981, Bogar, Schaffner and Friedlander, 1♂ (AMNH_PBI 00119114) (CNC). 2♂ (AMNH_PBI 00244710, AMNH_PBI 00244711), 3♀ (AMNH_PBI 00244712–AMNH_PBI 00244714) (TAMU); 01 Aug 1976, Peigler, Gruetzmacher, R. and M. Murray, Schaffner, 2♀ (AMNH_PBI 00244719, AMNH_PBI 00244720) (TAMU). Chila, 20.3°N 98.2°W, 1200 m, 25 Aug 1969, L. A. Kelton, 5♀ (AMNH_PBI 00112265, AMNH_PBI 00112963, AMNH_PBI 00114331–AMNH_PBI 00114333) (CNC). San Martin Texmelucan, 19.28333°N 98.43333°W, 2237 m, 27 Aug 1969, L. A. Kelton, 1♀ (AMNH_PBI 00112264) (CNC).

Jornandes heliocarpusi,
new species
Figures 3, 10A, 22

HOLOTYPE: ♂, MEXICO: **Zacatecas:** 24.7 mi S of Juchipila [21.09611°N 103.15545°W], August 6, 1988, Ferreira, Schaffner, Taken on *Heliocarpus terebinthinaceus* (DC.) Hochr., det. Oswaldo Tellez [19]'90 (AMNH_PBI 00184922). Deposited in the collection of the Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City, D.F.

DIAGNOSIS: Distinguished by pronotum reddish orange and hemelytron brownish orange, hemelytron usually with fuscous areas, scutellum reddish brown to dark fuscous, all femora dark fuscous except pale at apices, antenna pale (fig. 3); vestiture sparse, setae scattered, decumbent; vertex clearly wider than length of antennal segment I; labium reaching or nearly reaching metacoxa; width of pronotum greater than length of antennal segment II; hemelytron somewhat hyaline; metepisternum dorsal to evaporative area of scent gland with microtrichia.

DESCRIPTION: *Male*: COLORATION: Dorsum reddish orange to brownish orange with pale to dark fuscous areas. Head with vertex yellowish brown and frons, gena and base of clypeus more reddish orange, apex of clypeus dark fuscous, maxillary plate sometimes slightly darker than mandibular plate; antenna yellowish brown, base of segment I and segment IV usually pale fuscous; labium with segment I and apex dark fuscous. Pronotum reddish orange to brownish orange, yellowish brown on sides, rarely with central portion black and broad lateral areas reddish orange. Mesoscutum brownish orange; scutellum partially to entirely fuscous to black. Corium brownish orange with variable areas of pale fuscous coloration, membrane dark fuscous, paler centrally. Coxa dark fuscous, trochanter pale but with some pale fuscous areas, femora dark fuscous, yellowish brown near apices; tibiae and tarsi pale. Prosternum pale, meso- and metasterna dark fuscous, pleural areas yellowish brown, evaporatorium fuscous; underside of abdomen dark fuscous, some specimens slightly paler anteriorly. VESTITURE: Body mainly with decumbent, scattered setae, pale in color and somewhat inconspicuous, almost as long or longer than diameter of antennal segment II; antenna with uniformly decumbent setae; underside with vestiture longer and more dense; a few specimens with a few setae on membrane of hemelytron. GENI-

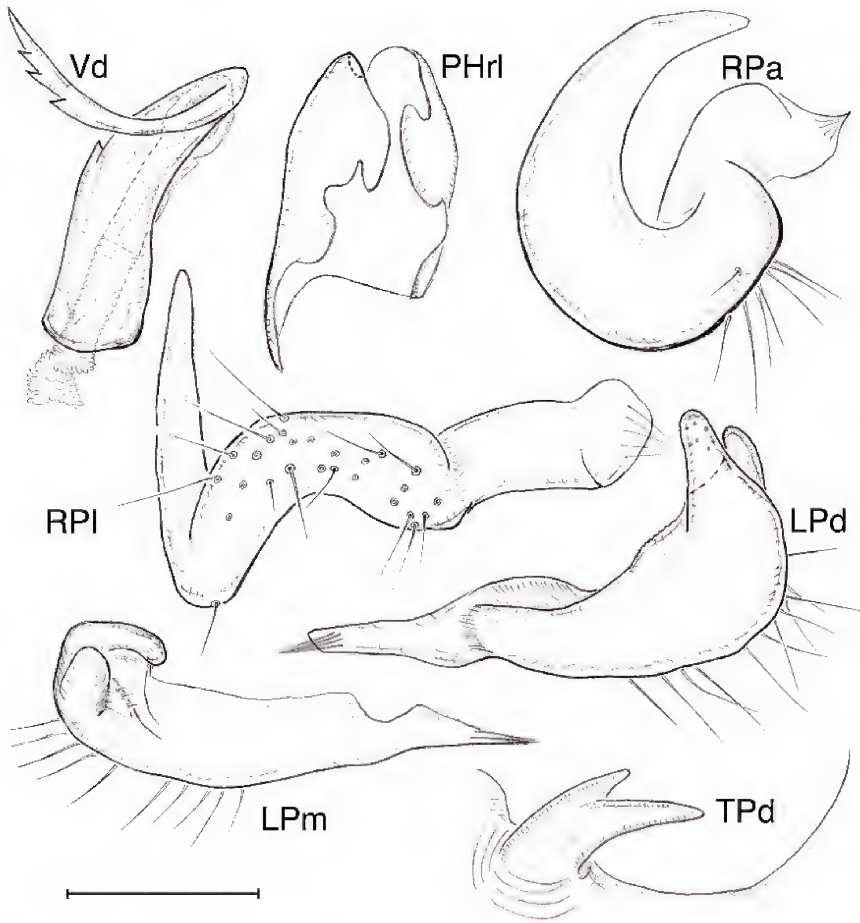

Fig. 22. Male genitalia of *Jornandes heliocarpusi*, 24.7 mi S of Juchipila, Zacatecas (AMNH_PBI 00118203); scale = 0.20 mm.

TALIA (fig. 22): **Genital segment** with relatively large, apically bifurcate, smooth-margined, tergal process located far right of midline on dorsal margin of aperture; ventroposterior margin of capsule with deep notch, subgenital plate asymmetrically placed to left of aperture, distal portion narrow, not projecting beyond aperture of capsule. **Left paramere** stoutly C-shaped in dorsal view; sensory lobe not produced beyond diameter of paramere; diameter expanded to deeply notched mittenlike apex. **Right paramere** slightly longer than left paramere; dorsal margin sinuate, distal region sicklelike, at right angle with basal portion of paramere, distal region long, attenuate to sharply pointed apex. **Phallotheca** small, subrectangular, subequal in length to vesical spiculum; aperture open widely apically. **Vesica** small; body of spiculum sinuate, thickened medially; distal region marginally serrate, recurved basally, projecting laterally, pointed apically, and with length almost as long as body of spiculum.

Female: Membrane of hemelytron uniformly dark fuscous otherwise color and vestiture as in male.

MEASUREMENTS: *Male* (n = 4; those of holotype given first followed in parentheses by average and range): Length, 2.94 (2.98, 2.86–3.10); width, 1.78 (1.79, 1.76–1.82). Head length, 0.14 (0.14, 0.12–0.14); width, 0.88 (0.89, 0.88–0.90); vertex width, 0.42 (0.42, 0.40–0.44). Length of antennal segment I, 0.20 (0.22, 0.20–0.22); II, 0.86 (0.87, 0.84–0.92); III, 0.68 (0.69, 0.66–0.72); IV, 0.36

(0.38, 0.36–0.40). Pronotal length, 0.70 (0.73, 0.70–0.74); width across base, 1.38 (1.42, 1.38–1.46). Cuneal length, 0.62 (0.63, 0.62–0.64); width across base, 0.56 (0.57, 0.56–0.58).

Female (n = 5; average followed in parentheses by range): Length 3.10 (2.94–3.20); width, 1.85 (1.76–1.90). Head length, 0.18 (0.18–0.20); width, 0.90 (0.88–0.92); vertex width, 0.45 (0.44–0.46). Length of antennal segment I, 0.21 (0.20–0.24); II, 0.89 (0.86–0.90); III, 0.65 (0.62–0.68); IV, 0.38 (0.36–0.40). Pronotal length, 0.74 (0.74–0.76); width across base, 1.42 (1.38–1.48). Cuneal length, 0.58 (0.56–0.58); width across base, 0.60 (0.58–0.64).

DISCUSSION: The variable fuscous-to-black coloration on the scutellum and corium makes this species somewhat difficult to describe. The scutellum varies from reddish orange, as on the pronotum, to entirely dark fuscous to black. The color of the clavus is more or less the same as the pronotum, whereas the embolium and corium usually exhibit various shades, usually pale to fuscous. The dark fuscous membrane is occasionally pale medially. A few setae are on the membrane of several specimens. This is the only species known to occur in the state of Zacatecas.

We have excluded three specimens from the paratype series. A male from southern Sinaloa state conforms to the above description, has identical male genitalic form as the holotype, but the absence of specimens from intervening areas questions its placement in the species. The male from Michoacan has identical male genitalia as the holotype, but is damaged with the head missing and the pronotum is mostly black, unlike the mostly orange-red pronotal coloration as in the holotype and paratypes. A female from the same collecting event has similar pronotal coloration as in the male.

HOST PLANT: *Heliocarpus terebinthinaceus* (DC.) Hochr. (Tiliaceae).

ETYMOLOGY: Named after the plant genus from which these specimens were taken.

DISTRIBUTION: Known from three collection events, the type locality, in southern Zacatecas, southern Sinaloa, and central Michoacan (fig. 10A).

PARATYPES: MEXICO: **Zacatecas:** 24.7 mi S of Juchipila, 21.09611°N 103.15545°W, 06 Aug 1988, Ferreira and Schaffner, *Heliocarpus terebinthinaceus* (DC.) Hochr. (Tiliaceae), 1♂ (AMNH_PBI 00094295) (AMNH). *Heliocarpus terebinthinaceus* (DC.) Hochr. (Tiliaceae), 1♂ (AMNH_PBI 00118203), 1♀ (AMNH_PBI 00119109) (CNC). *Heliocarpus terebinthinaceus* (DC.) Hochr. (Tiliaceae), 1♂ (AMNH_PBI 00184790), 4♀ (AMNH_PBI 00184791–AMNH_PBI 00184794) (TAMU).

OTHER SPECIMENS EXAMINED: MEXICO: **Michoacan:** 10.6 mi S of Uruapan, 18.96534°N 102.10035°W, 24 Jul 1983, Kovarik, Harrison, and Schaffner, 1♂ (AMNH_PBI 00245179), 1♀ (AMNH_PBI 00245180) (TAMU). **Sinaloa:** 13 mi E of Concordia, 23.28319°N 105.861°W, 244 m, 09 Aug 1964, L. A. Kelton, 1♂ (AMNH_PBI 00114064) (CNC).

Jornandes jaredi, new species
Figures 3, 10D, 23

HOLOTYPE: ♂, MEXICO: **Puebla:** 13.3 mi NE of Tehuitzingo [18.35°N 98.2833°W, 1078 m], July 13–14, 1974, Clark, Murray, Ashe, Schaffner (AMNH_PBI 00184923). Deposited in the collection of the Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City, D.F.

DIAGNOSIS: Recognized by head dark fuscous to black, sometimes posterior margin of vertex and areas contiguous with eye brown; pronotum, scutellum, and hemelytron dark fuscous to black, abdomen paler, antenna and legs pale yellowish brown (fig. 3); vertex wider than length of antennal segment I; eye sexually dimorphic, larger in the male; labium extending to mesocoxa; width of pronotum greater than length of antennal segment II; margins of corium subparallel; setae on pronotum, scutellum, and corium conspicuous, about as long as diameter of antennal segment II; metepisternum dorsal to evaporative area of scent gland with microtrichia. This species is similar to *J. zapotecas*; both have pale antennae and legs. Along with *J. albipes*, these two species have small, apically serrate, vesical spiculae. *Jornandes jaredi* and *J. zapotecas* have large tergal processes on the right side of the genital aperture that are absent in *J. albipes*.

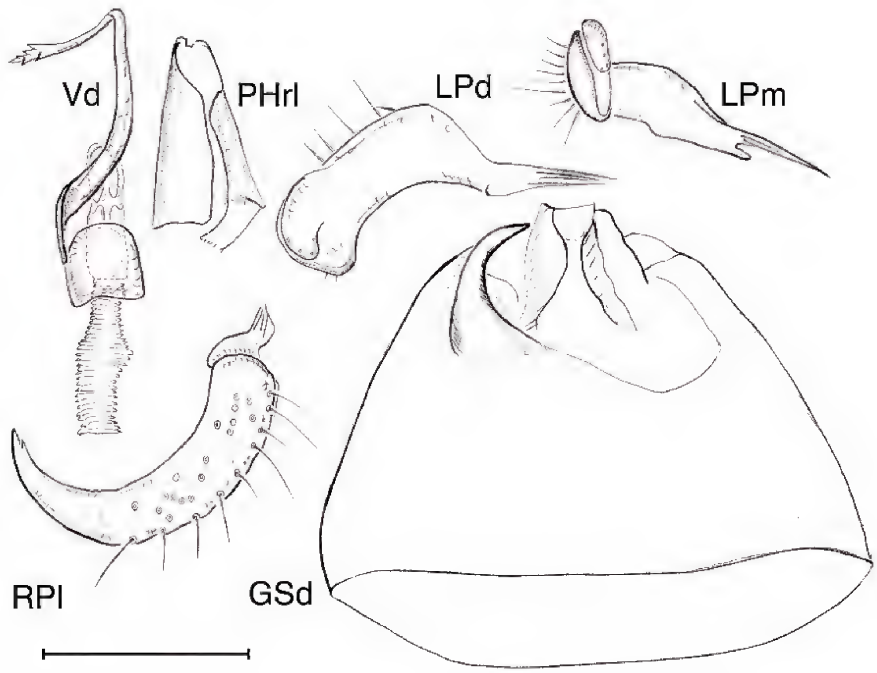

Fig. 23. Male genitalia of *Jornandes jaredi*, 13.3 mi NE of Tehuitzingo, Puebla (AMNH_PBI 00118199); scale = 0.20 mm.

The relatively dense vestiture of the dorsum also indicates a close relationship. The larger size (2.88–3.16♂♂; 2.96–3.24♀♀) and fine structure of the male genitalia serve to distinguish *J. jaredi* from *J. zapotecas* (2.50–2.68♂♂; 2.50–2.94♀♀). *Jornandes jaredi* is known from moderate altitudes whereas *J. zapotecas* was taken primarily at sea level.

DESCRIPTION: *Male*: COLORATION: Dorsum dark fuscous with pale antennae and legs. Head dark fuscous to black with brown areas on vertex near eyes and sometimes on posterior margin of vertex; antenna pale brownish yellow with fuscous markings at base of segment I. Thorax including mesoscutum, scutellum, and hemelytron dark fuscous to black. Corium frequently paler at extreme base, membrane of hemelytron with pale area adjacent to apex of cuneus. Legs pale yellowish brown, base of mesocoxa slightly fuscous at base. Abdomen dark fuscous. VESTITURE: Frons and vertex of head, disc of pronotum, scutellum, and corium with conspicuous setae, the length of which about as long as diameter of antennal segment II, pleuron of thorax almost devoid of setae; antennal segments II–IV with short decumbent setae; semierect spines of tibiae as long or longer than diameter of respective tibia; decumbent setae of abdomen longer and more dense. GENITALIA (fig. 23): **Genital segment** with narrow tergal processes to right of midline of dorsal margin of aperture; ventroposterior margin of capsule with acute notch; distal width of subgenital plate narrow, dorsal margin of plate slightly projecting beyond aperture of capsule. **Left paramere** C-shaped in dorsal view; relatively short, sensory lobe minimally produced, diameter gradually widening to expanded mitten-shaped apex. **Right paramere** slightly longer than left paramere, J-shaped, sensory lobe evident with slight thickening; diameter attenuate toward narrow, pointed apex. **Phallotheca** conical, length subequal to length of spiculum, aperture ovoid on right surface. **Vesica** relatively short; trunk of spiculum sinuate, thickened medially; distal region recurved with one serrate, needlelike branch, reaching to 1/3 length of spiculum; base attached slightly to right of dorsal surface on right side of sclerotized portion of ductus seminis.

Female: Color and vestiture same as for male.

MEASUREMENTS: *Male* (n = 20; holotype given first followed in parentheses by average and range): Length, 3.10 (3.06, 2.88–3.16); width, 1.16 (1.13, 1.10–1.16). Head length, 0.16 (0.16, 0.14–0.20); width, 0.74 (0.73, 0.70–0.76); vertex width, 0.28 (0.28, 0.26–0.30). Length of antennal segment I, 0.24 (0.24, 0.22–0.26); II, 0.86 (0.87, 0.82–0.92); III, 0.66 (0.65, 0.60–0.68); IV, 0.34 (0.31, 0.30–0.34). Pronotal length, 0.50 (0.52, 0.50–0.54); width across base, 0.92 (0.96, 0.92–1.02). Cuneal length, 0.54 (0.55, 0.52–0.60); width across base, 0.42 (0.38, 0.36–0.42).

Female (n = 13; average given first followed in parentheses by range): Length, 3.11 (2.96–3.24); width, 1.24 (1.12–1.28). Head length, 0.17 (0.14–0.20); width, 0.73 (0.70–0.74); vertex width, 0.33 (0.32–0.34). Length of antennal segment I, 0.23 (0.22–0.24); II, 0.85 (0.76–0.90); III, 0.64 (0.58–0.64); IV, 0.33 (0.28–0.40). Pronotal length, 0.54 (0.52–0.56); width across base, 0.99 (0.92–1.04). Cuneal length, 0.53 (0.50–0.56); width across base, 0.43 (0.38–0.44).

DISCUSSION: With the exception of a few restricted pale areas, the body is totally dark fuscous to black with contrastingly pale legs and antennae. Most specimens show a pale fuscous area at the extreme base of the corium, which can best be seen from the side. The setae on the corium are longer and denser than in most species.

HOST PLANT: Unknown.

ETYMOLOGY: Name in honor of the second author's son Jared.

DISTRIBUTION: Known from five localities in southwestern Puebla, eastern Oaxaca, and southern Guerrero (fig. 10D).

PARATYPES: **Guerrero:** 17 mi E of Acapulco, 16.84983°N 99.65836°W, 09 Jul 1974, Clark, Murray, Ashe, Schaffner, 1♂ (AMNH_PBI 00184780) (TAMU). **Oaxaca:** 2 mi N of San Jose del Pacifico, 16.18957°N 96.52005°W, 2262 m, 16 Jul 1974, Clark, Murray, Ashe, Schaffner, 1♂ (AMNH_PBI 00184984) (TAMU). **Puebla:** 13.3 mi NE of Tehuitzingo, 18.35°N 98.2833°W, 1078 m, 13 Jul 1974–14 Jul 1974, Clark, Murray, Ashe, Schaffner, 1♂ (AMNH_PBI 00184778), 1♀ (AMNH_PBI 00094300) (AMNH). 3♂ (AMNH_PBI 00094299, AMNH_PBI 00118199, AMNH_PBI 00119101), 2♀ (AMNH_PBI 00094298, AMNH_PBI 00119102) (CNC). 15♂ (AMNH_PBI 00184763–AMNH_PBI 00184777), 10♀ (AMNH_PBI 00184758–AMNH_PBI 00184762, AMNH_PBI 00184779, AMNH_PBI 00184987–AMNH_PBI 00184990) (TAMU). 14.4 mi SW of Izucar de Matamoros, 18.5312°N 98.57215°W, 1268 m, 01 Aug 1976, Peigler, Gruetzmacher, R. and M. Murray, Schaffner, 1♂ (AMNH_PBI 00184985), 1♀ (AMNH_PBI 00184986) (TAMU). 8 km NE of Zinacantepec, 18.38833°N 97.21°W, 1440 m, 01 Aug 1995, T. J. Henry and E. Barrera, 3♂ (AMNH_PBI 00133918–AMNH_PBI 00133920), 5♀ (AMNH_PBI 00133921–AMNH_PBI 00133925) (USNM).

Jornandes lynnae, new species
Figures 3, 10E, 24

HOLOTYPE: ♂, MEXICO: **Oaxaca:** 2.1 mi NW of Totolapan [16.68826°N 96.32254°W], July 11–17, 1981, Bogar, Schaffner, Friedlander, Taken on *Recchia mexicana* Moc. & Sessé, det. Oswaldo Tellez [19]'90 (AMNH_PBI 00184924). Deposited in the collection of the Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City, D.F.

DIAGNOSIS: Recognized by brownish-orange coloration of body, abdomen sometimes darker, antennal segment II fuscous at apex, cuneus pale reddish brown, legs sometimes brownish yellow to brownish orange (fig. 3); vertex clearly wider than length of antennal segment I; labium slightly surpassing procoxa; width of pronotum greater than length of antennal segment II; metepisternum dorsal to evaporative area of scent gland with microtrichia.

DESCRIPTION: *Male*: COLORATION: Head brownish orange, maxillary plate darker reddish brown; apex of clypeus fuscous; antennal segment I usually paler than general head color, apex fuscous, segment II dark fuscous, frequently with basal half slightly paler, remaining segments dark fuscous, labium brownish orange, apex fuscous. Pronotum brownish orange often with reddish areas along and below lateral margins. Mesoscutum and scutellum brownish orange, occasionally entire scutellum fuscous. Corium

brownish orange, cuneus with a reddish-brown tint; corium sometimes with claval suture fuscous to dark fuscous, which may delimit an indistinct fuscous area; outer edge and apex of cuneus fuscous to dark fuscous; membrane fuscous, often with paler area along inner margin of cuneus. Legs yellowish to brownish orange, hind femur sometimes with pale fuscous spot apically. Meso- and metathorax shades of orange to reddish brown with evaporative area of scent gland usually fuscous basally. Underside brownish orange to fuscous. VESTITURE: Setae on head sparse, semierect about as long as diameter of antennal segment II; vestiture of antenna decumbent; pronotum, scutellum, and corium similar to head, but setae more evenly distributed; semierect setae on tibiae as long or longer than diameter of tibiae. Setae on underside of abdomen longer and denser than rest of body. GENITALIA (fig. 24): **Genital segment** with short, smooth-margined, mitten-shaped tergal process, medially placed to right of midline on dorsal margin of aperture; ventroposterior margin of capsule notched, subgenital plate asymmetrically placed near left paramere fossa, moderately wide distally, slightly projecting dorsal to aperture of capsule. **Left paramere** C-shaped in dorsal view; diameter gently expanded to wide mittenlike apex. **Right paramere** somewhat larger in size than in left paramere, elongate with quadrate sensory lobe, distal half of paramere with rounded apex and large, somewhat dorsally directed subapical process, with large pointed tubercle. **Phallotheca** elongate quadrate, as long as 2/3 of vesical spiculum; aperture sinuate, open narrowly from dorsal surface to narrow, more pointed, apex. **Vesica** moderately large; spiculum strongly sinuate, S-shaped, slightly thickened medially; recurved distal branch serrate, reaching to about one half of body of spiculum; crestlike flange ringing middle of recurved distal branch; base of spiculum, widely situated on dorsal surface of ductus seminis, with recurved, sinuate, flattened, truncate basal process.

Female: Antennal segment II pale with apex dark fuscous, otherwise coloration and vestiture same as for male.

MEASUREMENTS: *Male* (n = 20; those of holotype given first followed in parentheses by average and range): Length, 3.50 (3.37, 3.12–3.70); width, 1.64 (1.62, 1.50–1.70). Head length, 0.20 (0.20, 0.16–0.22); width, 0.92 (0.90, 0.82–0.94); vertex width, 0.36 (0.37, 0.34–0.38). Length of antennal segment I, 0.26 (0.26, 0.24–0.28); II, 1.10 (1.05, 0.90–1.16); III, 0.74 (0.73, 0.58–0.82); IV, 0.36 (0.34, 0.30–0.40). Pronotal length, 0.66 (0.65, 0.60–0.68); width across base, 1.28 (1.27, 1.16–1.34). Cuneal length, 0.66 (0.63, 0.58–0.68); width across base, 0.52 (0.51, 0.50–0.54).

Female (n = 20; average given first followed in parentheses by range): Length, 3.44 (3.24–3.70); width, 1.75 (1.62–1.90). Head length, 0.23 (0.18–0.26); width, 0.89 (0.86–0.94); vertex width, 0.42 (0.38–0.44). Length of antennal segment I, 0.25 (0.24–0.26); II, 0.99 (0.86–1.10); III, 0.67 (0.54–0.76); IV, 0.34 (0.28–0.42). Pronotal length, 0.68 (0.60–0.72); width across base, 1.31 (1.16–1.40). Cuneal length, 0.61 (0.56–0.66); width across base, 0.55 (0.52–0.58).

DISCUSSION: The brownish-orange coloration, often tinged with red, sets this attractive species apart from all others. The maxillary plate is slightly more fuscous, which, in conjunction with the darker clypeus, gives a color pattern of the head similar to that of *J. cruralis* and other species. Most or all the second antennal segment of the male is dark fuscous, whereas the female has the segment pale abruptly grading to dark fuscous at the apex. Setae on the head, pronotum, and corium longer and more conspicuous than many species of the genus. Some specimens have retained sparse setae on the hemelytral membrane. The sculpturation on the hemelytra is easy to see.

HOST PLANT: *Recchia mexicana* Moc. & Sessé (Simaroubaceae).

ETYMOLOGY: Name to honor the first author's daughter Lynn.

DISTRIBUTION: Known from three localities in south central Oaxaca (fig. 10E).

PARATYPES: MEXICO: **Oaxaca:** 10 mi E of Totolapan, 16.66661°N 96.1482°W, 1219 m, 20 Jul 1987, Kovarik and Schaffner, *Recchia mexicana* Moc. & Sesse (Simaroubaceae), 1♂ (AMNH_PBI 00185004) (AMNH). *Recchia mexicana* Moc. & Sesse (Simaroubaceae), 1♀ (AMNH_PBI 00119094) (CNC). *Recchia mexicana* Moc. & Sesse (Simarouba-

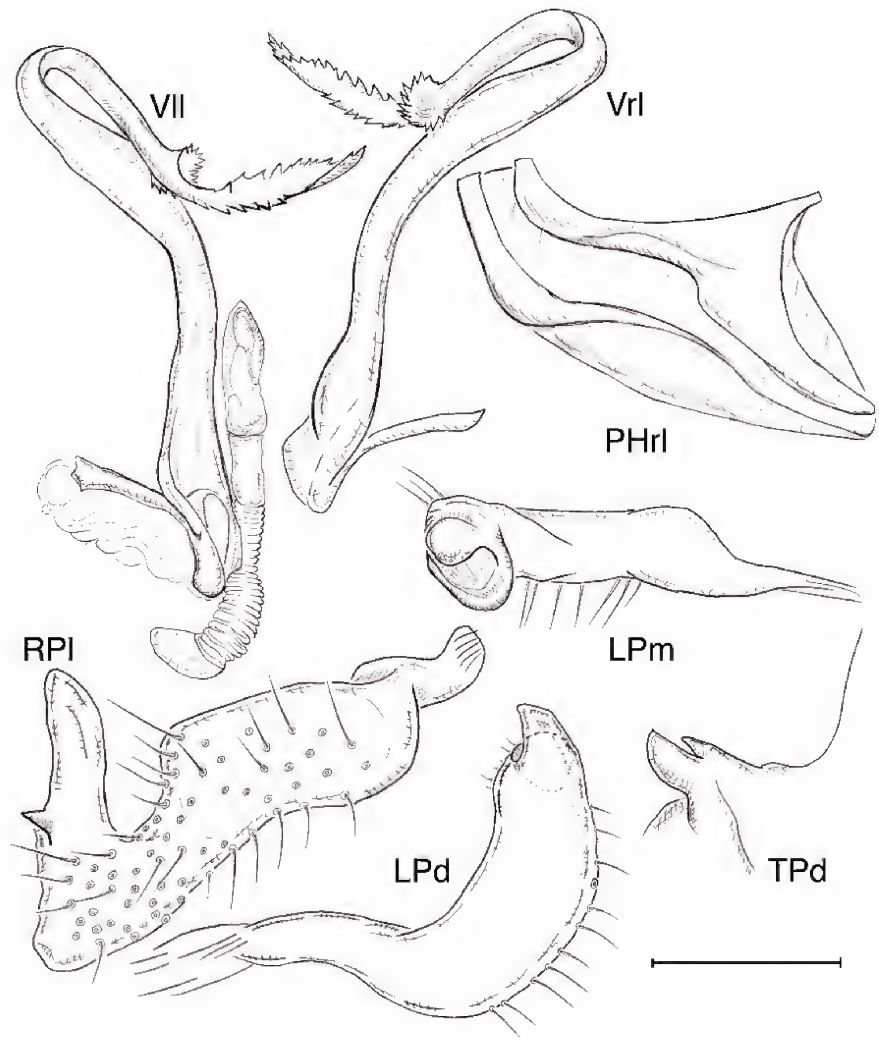

Fig. 24. Male genitalia of *Jornandes lynnae*, 11.3 mi SE of Totolapan, Oaxaca (AMNH_PBI 00118195); scale = 0.20 mm.

ceae), 8♂ (AMNH_PBI 00185002–AMNH_PBI 00185003, AMNH_PBI 00185005–AMNH_PBI 00185010), 17♀ (AMNH_PBI 00185011–AMNH_PBI 00185027) *Recchia mexicana* Moc. & Sesse (Simaroubaceae), 1♂ (AMNH_PBI 00119093) (TAMU). 11.3 mi SE of Totolapan, 16.69544°N 96.18353°W, 1009 m, 21 Jul 1974, Clark, Murray, Ashe, Schaffner, 1♂ (AMNH_PBI 00118195) (CNC). 2.1 mi NW of Totolapan, 16.68826°N 96.32254°W, 11 Jul 1981–17 Jul 1981, Bogar, Schaffner and Friedlander, *Recchia mexicana* Moc. & Sesse (Simaroubaceae), 1♀ (AMNH_PBI 00185031) (AMNH). *Recchia mexicana* Moc. & Sesse (Simaroubaceae), 2♂ (AMNH_PBI 00094290, AMNH_PBI 00184993), 1♀ (AMNH_PBI 00094291) (CNC). *Recchia mexicana* Moc. & Sesse (Simaroubaceae), 10♂ (AMNH_PBI 00184991–AMNH_PBI 00184992, AMNH_PBI 00184994–AMNH_PBI 00185001), 9♀ (AMNH_PBI 00185028–AMNH_PBI 00185030, AMNH_PBI 00185032–AMNH_PBI 00185037) (TAMU).

Jornandes michoacanensis,
new species
Figures 3, 10A, 25

HOLOTYPE: ♂, MEXICO: **Michoacan:** 22 mi NE of Arteaga [18.6927°N 102.1782°W],

July 31, 1988, elev. 3,000 ft [914 m], Ferreira, Schaffner (AMNH_PBI 00094289). Deposited in the collection of the Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City, D.F.

DIAGNOSIS: Distinguished by body dark fuscous to black, occasionally with paler coloration on vertex and mandibular plate, antenna pale, femora dark fuscous with apices pale, tibiae pale (fig. 3); robust in general appearance; vertex clearly wider than length of antennal segment I; apical two antennal segments about as wide as basal two segments; labium barely reaching mesocoxa; width of pronotum much greater than length of antennal segment II; metepisternum dorsal to evaporative area of scent gland with microtrichia.

DESCRIPTION: *Male*: COLORATION: Dorsum dark fuscous to black with paler areas on head and appendages. Head variable shades of fuscous, vertex often pale yellowish brown, with frons darker and clypeus dark fuscous, mandibular plate often more reddish than fuscous, maxillary plate darker; antenna pale yellowish brown; labium with basal segment reddish fuscous, remainder of labium pale yellowish except for dark fuscous apex. Thorax including hemelytron and abdomen dark fuscous to black. Coxae, trochanters, and most of femora dark fuscous to black, apices of femora, tibiae and tarsi pale yellowish brown. VESTITURE: Head, pronotum, sides of thorax, and hemelytron with sparse, decumbent inconspicuous setae; antennal segments with decumbent setae; setae on abdomen prominent and longer; setae on membrane of hemelytron visible on most specimens. GENITALIA (fig. 25): **Genital segment** with moderately long, smooth-margined, gently curved and pointed tergal process located just right of midline on dorsal margin of aperture; ventroposterior margin of capsule with small notch, subgenital plate small, not projecting dorsal to aperture of capsule. **Left paramere** C-shaped in dorsal view; sensory lobe not produced beyond diameter of paramere; diameter expanded to slightly expanded mittenlike apex, medial lobe large. **Right paramere** size similar to left paramere; somewhat C-shaped; dorsal margin sinuate, slightly expanded basal portion offset laterally from insertion of paramere; distal region with small lateral and apical spines. **Phallotheca** small, cone shaped, almost as long as vesical spiculum; aperture open widely on dorsal and right lateral surfaces, narrowed to apex. **Vesica** small; diameter of spiculum base and body thickened; situated on dorsal surface of ductus seminis, with short basal process; distal region sharply recurved, minutely serrate with sharply pointed apex, length 1/3 of spiculum body.

Female: Color and vestiture same as for male.

MEASUREMENTS: *Male* (n = 4; those of holotype given first followed in parentheses by average and range): Length, 2.26 (2.27, 2.24–2.30); width, 1.52 (1.48, 1.44–1.52). Head length, 0.20 (0.20, 0.20–0.22); width, 0.80 (0.78, 0.78–0.80); vertex width, 0.38 (0.37, 0.36–0.38). Length of antennal segment I, 0.22 (0.21, 0.20–0.22); II, 0.78 (0.76, 0.74–0.78); III, 0.56 (0.54, 0.50–0.62); IV, 0.30 (0.30, 0.26–0.32). Pronotal length, 0.60 (0.60, 0.58–0.62); width across base, 1.20 (1.18, 1.16–1.20). Cuneal length, 0.44 (0.47, 0.44–0.50); width across base, 0.44 (0.46, 0.44–0.50).

Female (n = 20; average followed in parentheses by range): Length, 2.53 (2.44–2.62); width, 1.61 (1.56–1.68). Head length, 0.22 (0.20–0.24); width, 0.82 (0.80–0.84); vertex width, 0.42 (0.40–0.44). Length of antennal segment I, 0.19 (0.16–0.22); II, 0.72 (0.70–0.78), III, 0.58 (0.52–0.62); IV, 0.30 (0.28–0.34). Pronotal length, 0.70 (0.64–0.74); width across base, 1.27 (1.24–1.32). Cuneal length, 0.47 (0.44–0.52); width across base, 0.45 (0.44–0.50).

DISCUSSION: This species can be distinguished from most others by the reddish or reddish-fuscous coloration on the mandibular plate. The species is relatively ovate; the pronotum and especially the cuneus and wing membrane are relatively declivent, and the outer margin of the corium is strongly curved. The third and fourth antennal segments are subequal in length with the diameter of these segments about the same as first two segments. The cuticular sculpturation is easily visible.

HOST PLANT: Unknown.

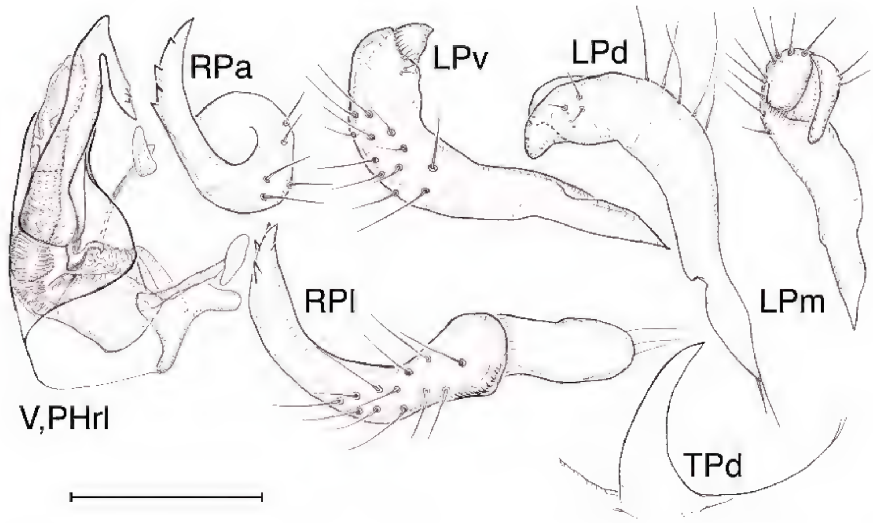

Fig. 25. Male genitalia of *Jornandes michoacanensis*, 18.8 mi NE of Arteaga, Michoacan (AMNH_PBI 00094248); scale = 0.20 mm.

ETYMOLOGY: Named after the state from which nearly all the specimens were collected.

DISTRIBUTION: Known from two localities in southwestern Michoacan and a single specimen from southern Sinaloa (fig. 10A).

PARATYPES: MEXICO: **Michoacan:** 18.8 mi NE of Arteaga, 18.65984°N 102.21289°W, 31 Jul 1988, Ferreira and Schaffner, 1♂ (AMNH_PBI 00094248) (CNC). 18.8 mi NE of Arteaga, 18.65984°N 102.21289°W, 945 m, 31 Jul 1988, Ferreira and Schaffner, 2♀ (AMNH_PBI 00185150, AMNH_PBI 00185151) (TAMU). 22 mi NE of Arteaga, 18.6927°N 102.1782°W, 914 m, 31 Jul 1988, Ferreira and Schaffner, 1♀ (AMNH_PBI 00184623) (CNC). 2♂ (AMNH_PBI 00185128, AMNH_PBI 00185129), 20♀ (AMNH_PBI 00185130–AMNH_PBI 00185149) (TAMU). **Sinaloa:** Mazatlan, 23.21666°N 106.41666°W, 14 Aug 1965, Burke and J. Meyer, 1♂ (AMNH_PBI 00106580) (TAMU).

Jornandes mimosae, new species
Figures 3, 10B, 26

HOLOTYPE: ♂, MEXICO: **Guerrero:** 10.3 mi S of Iguala [17.70023°N 100.36666°W], July 23, 1981 Bogar, Schaffner, Friedlander, taken on *Mimosa polyantha* Benth., det. Oswald Tellez, 1990 (AMNH_PBI 00184925). Deposited in the collection of the Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City, D.F.

DIAGNOSIS: Recognized by head brown dorsally, maxillary plate usually dark fuscous, clypeus black, remainder of body and antenna dark fuscous to black, coxa, trochanter, and femur dark fuscous (fig. 3), tibia and tarsomeres frequently paler; vertex clearly wider than length of antennal segment I; labium reaching or nearly reaching mesocoxa; width of pronotum greater than length of antennal segment II; and metepisternum dorsal to evaporative area of scent gland with microtrichia. Similar to *J. tehuacanensis* in the entirely orange-brown head, female with pale medial annulus on antennal segment II; and male genitalia with small right paramere with spinose dorsal lobe, moderately long, C-shaped left paramere with wide apical notch, vesical spiculum bifid, with one long and one short serrate process, and genital aperture without tergal process.

DESCRIPTION: *Male*: COLORATION: Generally dark shining fuscous to black. Head with brown coloration; vertex, and frons brown, maxillary plate at least on ventral half dark fuscous, clypeus dark fuscous to black, antennal segments dark fuscous to black; labium with basal segment

brown, segments II and III fuscous, apical segment dark fuscous to black. Pronotum highly polished dark fuscous to black, remainder of thorax dark fuscous to black. Membrane of hemelytron dark fuscous. Coxa dark fuscous; femora dark fuscous, brown at apex; apical half of tibiae frequently brown; tarsi brown to fuscous. Abdomen dark fuscous. VESTITURE: Head and thorax, except for appendages, almost devoid of setae; scutellum and corium with short and more evenly scattered decumbent setae; membrane of hemelytron usually with scattered decumbent setae; setae of antennal segments II–IV decumbent, about as long as diameter of respective segment; semierect black spines of tibiae longer than diameter of respective tibia; decumbent setae of abdomen long and more dense. GENITALIA (fig. 26): **Genital segment** without tergal processes, dorsal margin of aperture well-sclerotized, with dense bristlelike setae; ventroposterior margin of capsule with acute notch; distal width of subgenital plate narrow, dorsal margin of plate slightly projecting beyond aperture of capsule. **Left paramere** C-shaped in dorsal view; sensory lobe minimally produced, denoted by long setae; diameter of paramere wide, gradually expanded to mitten-shaped apex. **Right paramere** shorter than left paramere, densely covered with long setae; diameter of paramere thick basally; sensory lobe or anterior region with blunt, stoutly spinose tubercle, distal region relatively short, with blunt apex. **Phallotheca** rectangular, convoluted, equal to 2/3 length of spiculum; aperture small, restricted to crescent-shaped distal opening. **Vesica** with one moderately long, sinuate, needlelike spiculum, base strongly convoluted, situated on dorsal surface of ductus seminis; narrow distal region serrate; middle of spiculum with narrow spine; base of spiculum wide with small tubercle.

Female: Frons more broadly curved than male and antennal segment II pale medially; otherwise color and vestiture same as for male.

MEASUREMENTS: *Male* (n = 20; those of holotype given first followed in parentheses by average and range): Length, 2.90 (2.87, 2.70–3.10); width, 1.38 (1.35, 1.30–1.40). Head length, 0.16 (0.19, 0.16–0.22); width, 0.70 (0.71, 0.68–0.71); vertex width, 0.36 (0.36, 0.36–0.38). Length of antennal segment I, 0.22 (0.21, 0.20–0.24); II, 0.90 (0.89, 0.84–0.92); III, 0.64 (0.66, 0.64–0.70); IV, 0.32 (0.31, 0.30–0.34). Pronotal length, 0.58 (0.57, 0.52–0.62); width across base, 1.12 (1.08, 1.04–1.16). Cuneal length, 0.54 (0.53, 0.50–0.56); width across base, 0.42 (0.43, 0.40–0.48).

Female (n = 20; average followed in parentheses by range): Length, 3.04 (2.86–3.36); width, 1.53 (1.47–1.60): Head length, 0.23 (0.18–0.26); width, 0.75 (0.72–0.76) vertex width, 0.41 (0.40–0.44). Length of antennal segment I, 0.21 (0.18–0.22); II, 0.84 (0.80–0.90); III, 0.62 (0.60–0.68); IV, 0.30 (0.26–0.34). Pronotal length, 0.62 (0.60–0.66); width across base, 1.16 (1.12–1.20). Cuneal length, 0.52 (0.48–0.52); width across base, 0.52 (0.48–0.56).

DISCUSSION: This species is easily recognized by having most of the body dark fuscous to black except for the brown vertex and frons. The coxa, mesepisternum, and the evaporatorium of the scent gland have pollinose areas consisting of a dense cover of microtrichia. Setae on the membrane of the hemelytra are more common than in most other species. The sculpturing of this species is easily seen on its shining corium and clavus. A number of features of *J. mimosae* are similar to *J. tehuacanensis* (see diagnosis).

HOST PLANT: *Mimosa polyantha* Benth. (Fabaceae: Mimosoideae).

ETYMOLOGY: Named after the host plant genus.

DISTRIBUTION: Known from five localities in northern Guerrero (fig. 10B).

PARATYPES: MEXICO: **Guerrero:** 10.3 mi S of Iguala, 17.70023°N 100.36666°W, 23 Jul 1981, Bogar, Schaffner and Friedlander, *Mimosa polyantha* Benth. (Fabaceae-Mimosaceae), 10♂ (AMNH_PBI 00106394–AMNH_PBI 00106403), 6♀ (AMNH_PBI 00106404–AMNH_PBI 00106409), 5♀ (AMNH_PBI 00106410–AMNH_PBI 00106414) (TAMU); 27 Jul 1983, Kovarik, Harrison, and Schaffner, *Mimosa polyantha* Benth. (Fabaceae), 1♂ (AMNH_PBI 00094269) (AMNH). *Mimosa polyantha* Benth. (Fabaceae), 1♀ (AMNH_PBI 00094270) (CNC). 18.2 mi S of Iguala, 17.5739°N 100.36666°W, 914 m, 05 Jul 1987, Kovarik and Schaffner, 1♂ (AMNH_PBI 00106352) (TAMU). 2.1 mi N of Cacahuamilpa, 18.67339°N 99.55333°W, 19 Jul 1984,

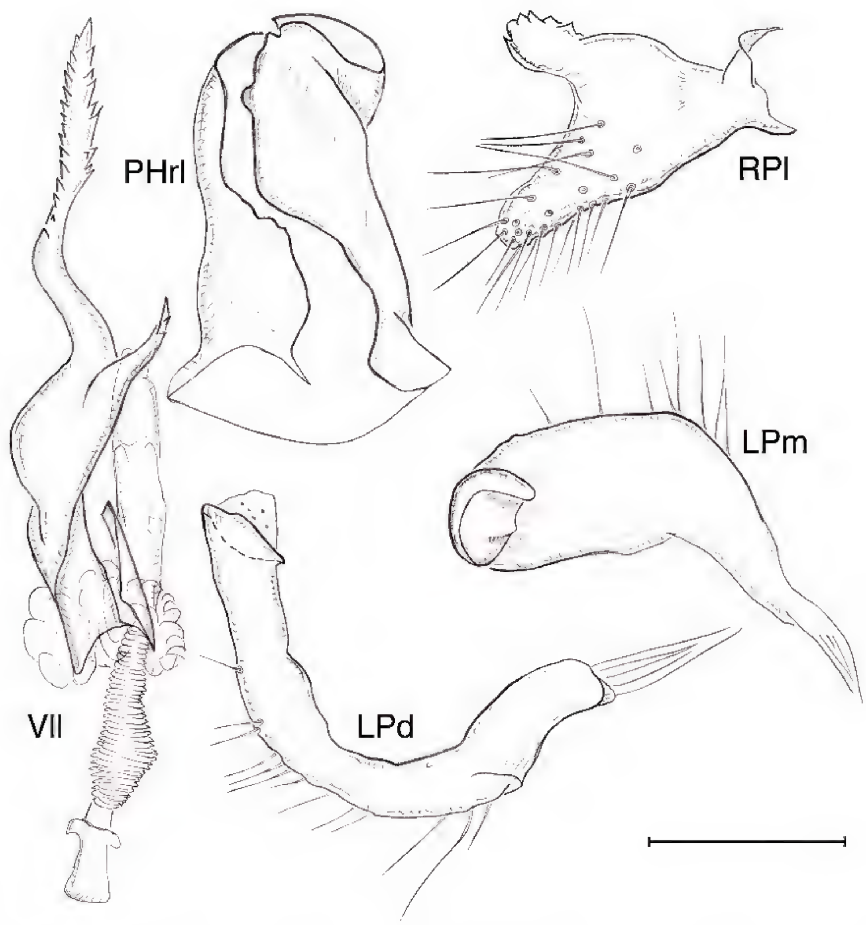

Fig. 26. Male genitalia of *Jornandes mimosae*, 2.1 mi N of Cacahuamilpa, Guerrero (AMNH_PBI 00118207); scale = 0.20 mm.

Carroll, Schaffner, Friedlander, 1♂ (AMNH_PBI 00118207), 1♀ (AMNH_PBI 00119082) (CNC). *Mimosa polyantha* Benth. (Fabaceae-Mimosaceae), 34♂ (AMNH_PBI 00185175–AMNH_PBI 00185208), 23♀ (AMNH_PBI 00185152–AMNH_PBI 00185174), 1♂ (AMNH_PBI 00245164) (TAMU). 2.1 mi NW of Cacahuamilpa, 18.67484°N 99.5602°W, 27 Jul 1983, Kovarik, Harrison, and Schaffner, 1♂ (AMNH_PBI 00119081) (CNC). *Mimosa polyantha* Benth. (Fabaceae-Mimosaceae), 17♂ (AMNH_PBI 00106306–AMNH_PBI 00106315, AMNH_PBI 00184802–AMNH_PBI 00184808), 1♀ (AMNH_PBI 00184801), 13♂ (AMNH_PBI 00106319–AMNH_PBI 00106330, AMNH_PBI 00245165), 3♀ (AMNH_PBI 00106316–AMNH_PBI 00106318) (TAMU); 11 Aug 1978, Plitt and Schaffner, 1♂ (AMNH_PBI 00106343), 6♀ (AMNH_PBI 00106344–AMNH_PBI 00106349) (TAMU); 23 Jul 1981, Bogar, Schaffner and Friedlander, 6♂ (AMNH_PBI 00106331–AMNH_PBI 00106336), 6♀ (AMNH_PBI 00106337–AMNH_PBI 00106342) (TAMU). 8 mi W of Iguala, 18.33579°N 99.63697°W, 846 m, 18 Jul 1984, Carroll, Schaffner, Friedlander, 11♂ (AMNH_PBI 00106353–AMNH_PBI 00106363), 30♀ (AMNH_PBI 00106364–AMNH_PBI 00106393) (TAMU); 18 Jul 1984, J. B. Woolley, 1♂ (AMNH_PBI 00106350), 1♀ (AMNH_PBI 00106351) (TAMU).

Jornandes nathani, new species
Figures 3, 10D, 27

HOLOTYPE: ♂, MEXICO: **Puebla:** 5 mi SE of Izucar de Matamoros [18.54858°N

98.41242°W], July 20, 1984, Carroll, Schaffner, Friedlander (AMNH_PBI 00184926). Deposited in the collection of the Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City D.F.

DIAGNOSIS: Recognized by head and antennal segments I and II yellowish brown, apex of clypeus dark fuscous to black, pronotum yellowish brown occasionally with variable fuscous coloration medially, hemelytron and abdomen primarily dark fuscous to black (fig. 3); vertex wider than length of antennal segment I; labium reaching or barely reaching mesocoxa; width of pronotum greater than length of antennal segment II; metepisternum dorsal to evaporative area of scent gland with microtrichia. *Jornandes nathani* is most similar to *J. tehuacanensis,* but antennal segments I and II of *J. nathani* are pale, whereas segment II is dark fuscous or dark on the base and apex in *J. tehuacanensis*. The eye of the male is conspicuously larger in *J. nathani* than in *J. tehuacanensis*.

DESCRIPTION: *Male*: COLORATION: Dorsum yellowish brown and dark fuscous to black. Head, yellowish brown with maxillary plate yellowish brown to fuscous, and extreme apex of clypeus pale fuscous; antenna pale yellowish brown; frequently segments III and IV fuscous; labium with segment I and IV dark fuscous, remainder yellowish brown. Pronotum yellowish brown, occasionally with fuscous coloration medially. Mesoscutum dark fuscous, sometimes paler laterally; scutellum dark fuscous to black. Hemelytron fuscous to dark fuscous with base yellowish brown, membrane usually pale medially, remainder fuscous. Legs pale yellowish brown with meso- and metacoxae pale fuscous basally, tarsi fuscous at apex. Meso- and metapleuron and sternum ranging from yellowish brown to dark fuscous with pale brown coloration primarily on mesopleuron. Abdomen dark fuscous to black. VESTITURE: Head, disc of pronotum, scutellum, and corium with conspicuous setae, the length of which about as long as diameter of the antennal segment II, pleuron of thorax almost devoid of setae, antennal segments II–IV with short decumbent setae; semierect spines on tibiae as long or longer than diameter of respective tibia; decumbent setae of abdomen longer and more dense. GENITALIA (fig. 27): **Genital segment** with pair of pointed tergal processes placed right and left of midline on dorsal margin of aperture, right process longer than, left process; ventroposterior margin of capsule flattened, flangelike, subgenital plate asymmetrically placed near left paramere fossa, moderately wide distally, distal to aperture of capsule. **Left paramere** C-shaped in dorsal view; shorter distally than in other species of *Jornandes,* diameter abruptly widened at expanded mittenlike apex, subapical dorsal margin of paramere protruding. **Right paramere** slightly larger than left paramere, T-shaped in lateral view; sensory lobe not modified; apex of paramere with large, pointed dorsal lobe and slightly shorter, pointed ventral lobe. **Phallotheca** subrectangular, subequal in length to vesical spiculum; aperture sinuate, widely open from base of right side across dorsal surface to apex and left of apex. **Vesica** with long, sinuate, bifurcate spiculum, base strongly sinuate, situated on dorsal surface of ductus seminis; trunk of spiculum wide medially, apex of trunk with somewhat recurved, needlelike, serrate branches; base of spiculum with flattened, truncate process.

Female: Color and vestiture same as for male.

MEASUREMENTS: *Male* (n = 14; holotype given first followed in parentheses by average and range): Length, 3.44 (3.49, 3.20–3.70); width, 1.56 (1.62, 1.50–1.70). Head length, 0.20 (0.21, 0.18–0.24); width, 0.90 (0.89, 0.86–0.90); vertex width, 0.34 (0.33, 0.30–0.34). Length of antennal segment I, 0.28 (0.27, 0.24–0.30); II, 1.20 (1.16, 1.06–1.22); III, 0.90 (0.83, 0.76–0.90); IV, 0.40 (0.38, 0.34–0.42). Pronotal length, 0.64 (0.64, 0.62–0.68); width across base, 1.26 (1.29, 1.18–1.36). Cuneal length, 0.64 (0.66, 0.60–0.70); width across base, 0.50 (0.52, 0.48–0.54).

Female (n = 20; average given first followed in parentheses by range): Length 3.32 (3.08–3.58); width, 1.70 (1.60–1.88). Head length, 0.23 (0.20–0.28); width, 0.87 (0.82–0.90); vertex width, 0.40 (0.36–0.42). Length of antennal segment I, 0.26 (0.24–0.28); II, 1.06 (0.96–1.14); III, 0.73 (0.68–

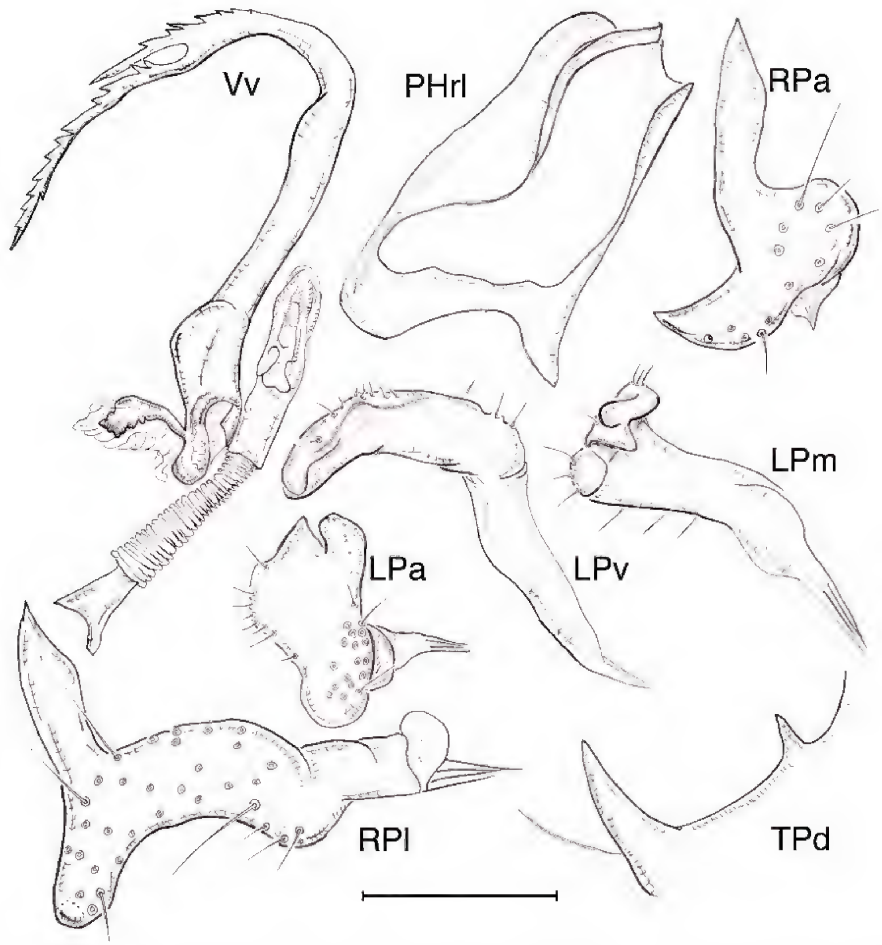

Fig. 27. Male genitalia of *Jornandes nathani*, 6 mi E of Xochipala, Guerrero (AMNH_PBI 00118198); scale = 0.20 mm.

0.84); IV, 0.38 (0.34–0.42). Pronotal length, 0.64 (0.60–0.70); width across base, 1.31 (1.22–1.38). Cuneal length, 0.59 (0.52–0.66); width across base, 0.55 (0.48–0.60).

DISCUSSION: Specimens from 6 mi E of Xochipala have the maxillary plate and much of the pleural and sternal regions of the thorax yellowish brown; these areas on specimens from other localities are fuscous to black. *Jornandes nathani* is one of six species having the scutellum and hemelytra dark fuscous to black and the pronotum a dull or bright shade of yellowish orange to yellowish brown. This species is most similar to *J. tehuacanensis,* which is also in the group. Both species share similarities in color and, importantly, the rather even distribution of short decumbent but conspicuous setae on the scutellum and corium. The structure of the male genitalia of *J. nathani* is somewhat similar to that of *J. rachelleae*, especially the form of the vesical spiculum. *J. rachelleae* is also in this group of six species.

HOST PLANT: Unknown.

ETYMOLOGY: Name in honor of the second author's son Eric Nathan.

DISTRIBUTION: Known from five localities in northern Guerrero and western Puebla (fig. 10D).

PARATYPES: MEXICO: **Guerrero:** 2.1 mi N of Cacahuamilpa, 18.67339°N 99.55333°W, 19 Jul 1984, Carroll, Schaffner, Friedlander, 1♂ (AMNH_PBI 00185240) (AMNH). 2♂ (AMNH_PBI 00185238, AMNH_PBI 00185239),

3♀ (AMNH_PBI 00185241–AMNH_PBI 00185243) (TAMU). 2.1 mi NW of Cacahuamilpa, 18.67484°N 99.5602°W, 27 Jul 1983, Kovarik, Harrison, and Schaffner, 1♀ (AMNH_PBI 00094297) (CNC). 7♂ (AMNH_PBI 00185244–AMNH_PBI 00185250), 3♀ (AMNH_PBI 00185251–AMNH_PBI 00185253) (TAMU); 10 Aug 1980, Schaffner, Weaver, Friedlander, 2♀ (AMNH_PBI 00185254, AMNH_PBI 00185255) (TAMU). 6 mi E of Xochipala, 17.7936°N 99.54263°W, 1067 m, 13 Jul 1985, Jones, Schaffner, 1♀ (AMNH_PBI 00185273) (CNC). 2♂ (AMNH_PBI 00185259, AMNH_PBI 00185260), 14♀ (AMNH_PBI 00185261–AMNH_PBI 00185272, AMNH_PBI 00185274–AMNH_PBI 00185275) (TAMU); 18 Jul 1984, J. B. Woolley, 1♂ (AMNH_PBI 00118198), 1♀ (AMNH_PBI 00119100) (CNC). 3♂ (AMNH_PBI 00119099, AMNH_PBI 00185256–AMNH_PBI 00185257), 1♀ (AMNH_PBI 00185258) (TAMU). **Puebla:** 5 mi SE of Izucar de Matamoros, 18.54858°N 98.41242°W, 20 Jul 1984, Carroll, Schaffner, Friedlander, 2♂ (AMNH_PBI 00185284, AMNH_PBI 00185285), 2♀ (AMNH_PBI 00185286, AMNH_PBI 00185287) (TAMU); 20 Jul 1984, J. B. Woolley, 6♂ (AMNH_PBI 00185276–AMNH_PBI 00185281), 2♀ (AMNH_PBI 00185282, AMNH_PBI 00185283) (TAMU). 7.3 mi SW of Izucar de Matamoros, 18.52184°N 98.57917°W, 22 Jul 1981, Bogar, Schaffner and Friedlander, 1♂ (AMNH_PBI 00094296) (CNC). 2♂ (AMNH_PBI 00185292, AMNH_PBI 00185293), 4♀ (AMNH_PBI 00185294–AMNH_PBI 00185297) (TAMU); 01 Aug 1976, Peigler, Gruetzmacher, R. and M. Murray, Schaffner, 1♀ (AMNH_PBI 00185290) (AMNH). 1♂ (AMNH_PBI 00185288), 2♀ (AMNH_PBI 00185289, AMNH_PBI 00185291) (TAMU).

Jornandes rachelleae, new species
Figures 3, 10E, 28, 29

HOLOTYPE: ♂, MEXICO: **Puebla:** 7.3 mi SW of Izucar de Matamoros [18.52184°N 98.57917°W], July 22, 1981, Bogar, Schaffner, Friedlander (AMNH_PBI 00184927). Deposited in the collection of the Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City, D.F.

DIAGNOSIS: Recognized by head shining brownish orange with maxillary plate and apex of clypeus darker, pronotum brownish orange, remainder of body dark fuscous to black; appearing glabrous dorsally; antennal segment II usually yellowish brown, medially and dark at base and apex; often with hind femur fuscous (fig. 3); vertex much wider than length of antennal segment I; antennal segment II slender, only slightly enlarged apically; labium reaching mesocoxa; width of pronotum greater than length of antennal segment II; metepisternum dorsal to evaporative area of scent gland with microtrichia (fig. 28C).

DESCRIPTION: *Male*: COLORATION: Dorsum brownish orange, brown and dark fuscous to black. Head brownish orange, clypeus black at apex, maxillary plate fuscous; antennal segment I pale brown with dark fuscous subapical ring, segment II pale brown medially usually dark fuscous to black on base and apical third, segments III and IV dark fuscous to black; labium brown with base of segments I and II and apex of labium dark fuscous to black. Pronotum brownish orange. Mesoscutum brownish orange; scutellum, corium, and membrane of hemelytron dark fuscous to black. Procoxa pale yellowish brown, mesocoxa pale or more usually brown to dark fuscous, metacoxa dark fuscous, pro- and mesofemora brownish orange, hind femora ranging from brownish orange to dark fuscous, tibiae varying from uniformly yellowish brown to areas of fuscous coloration, tarsomeres dark fuscous. Pleura of meso- and metathorax primarily dark fuscous to black, evaporatorium of scent gland dark fuscous. Abdomen dark fuscous to black. VESTITURE: Head and thorax, except for appendages, almost completely glabrous, except for scattered short setae; decumbent setae on antennal segments II–IV not longer than diameter of respective segment; semierect spines of tibiae slightly longer than diameter of respective tibia; decumbent setae of abdomen longer and more dense. GENITALIA (fig. 29): **Genital segment** with tergal process placed right of midline on dorsal margin of aperture, process broad basally, moderately long, smooth margined, and with narrow, pointed apex; ventroposterior margin of capsule broadly and acutely notched; distal width of subgenital plate wide, strongly projecting

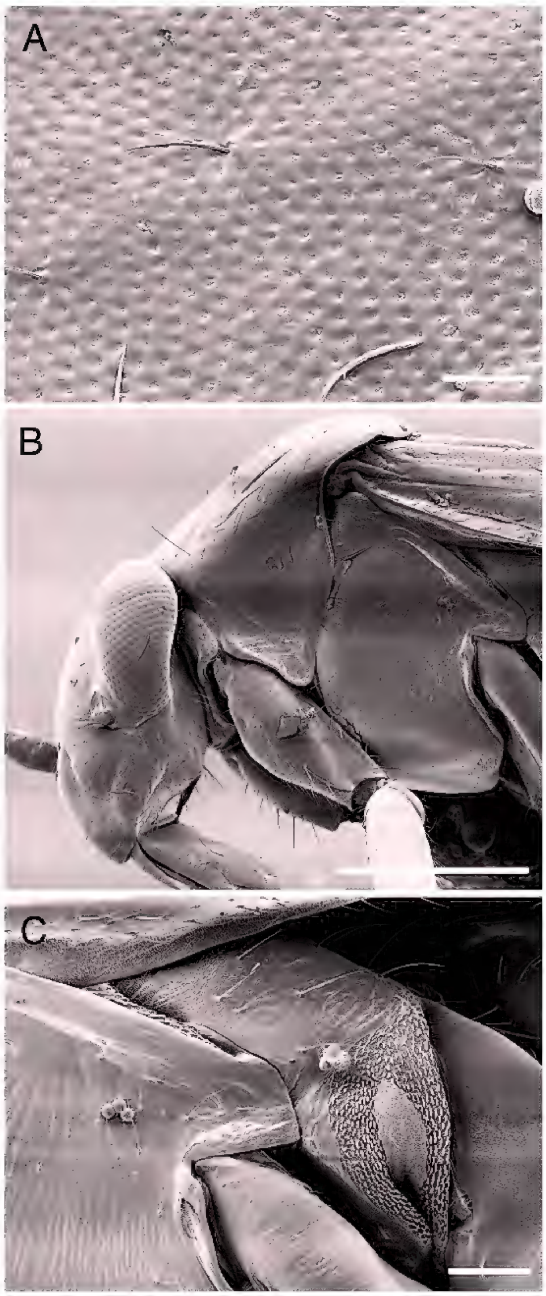

Fig. 28. Scanning electron micrographs of *Jornandes rachelleae*, Ojo de Agua, Guanajuato (AMNH_PBI 00112186). **A.** Cuticular sculpturing of corium, dorsal view; scale = 0.05 mm. **B.** Head and thorax, lateral view; scale = 0.50 mm. **C.** Mesothoracic spiracle and metathoracic scent-efferent system, lateral view; scale = 0.10 mm.

dorsal to aperture of capsule. **Left paramere** C-shaped in dorsal view; with sensory lobe not projected; diameter of paramere evenly thick to moderate subapical constriction, then expanded to notched mittenlike apical region. **Right paramere** elongate, slightly longer than length of left paramere; diameter of paramere widest basally; distal region tapered, flattened, serrate; apex broadly serrate. **Phallotheca** subrectangular, length almost equal to length of spiculum; aperture sinuate, open on right, dorsal, and apical surfaces. **Vesica** with long sinuate, medially thickened spiculum; apical region of spiculum bifurcate, narrow, slightly serrate, apically pointed with lobes projecting to right side; base of spiculum sinuate, broadly affixed to dorsal margin of ductus seminis, posterior portion of base with smooth, hooked, and pointed spine and with flattened, truncate process on anterior portion of base.

Female: Noticeably smaller in size, lateral margins more curved and membrane shorter, color and vestiture same as in male.

MEASUREMENTS: *Male* (n = 15; holotype given first followed in parentheses by average and range): Length, 3.66 (3.89, 3.66–4.20); width, 1.78 (1.83, 1.70–1.98). Head length, 0.26 (0.24, 0.20–0.28); width, 0.92 (0.93, 0.90–0.98); vertex width, 0.44 (0.46, 0.44–0.50). Length of antennal segment I, 0.28 (0.27, 0.24–0.28); II, 1.10 (1.06, 0.94–1.12); III, 0.80 (0.76, 0.70–0.82); IV, 0.38 (0.39, 0.36–0.42). Pronotal length, 0.78 (0.77, 0.70–0.82); width across base, 1.44 (1.47, 1.40–1.58). Cuneal length, 0.68 (0.71, 0.66–0.80); width across base, 0.56 (0.57, 0.54–0.60).

Female (n = 13; average followed in parentheses by range): Length, 3.29 (3.10–3.46); width, 1.85 (1.74–2.02). Head length, 0.27 (0.24–0.28); width, 0.94 (0.90–0.98); vertex width, 0.50 (0.48–0.54). Length of antennal segment I, 0.25 (0.24–0.28); II, 1.01 (0.98–1.08); III, 0.70 (0.62–0.76); IV, 0.38 (0.32–0.42). Pronotal length, 0.72 (0.70–0.76); width across base, 1.38 (1.32–1.46). Cuneal length, 0.54 (0.52–0.58); width across base, 0.60 (0.54–0.66).

DISCUSSION: As viewed from above, the body is almost devoid of setae. The labium, which is longer than in most species of the genus, reaches the mesocoxa. The difference

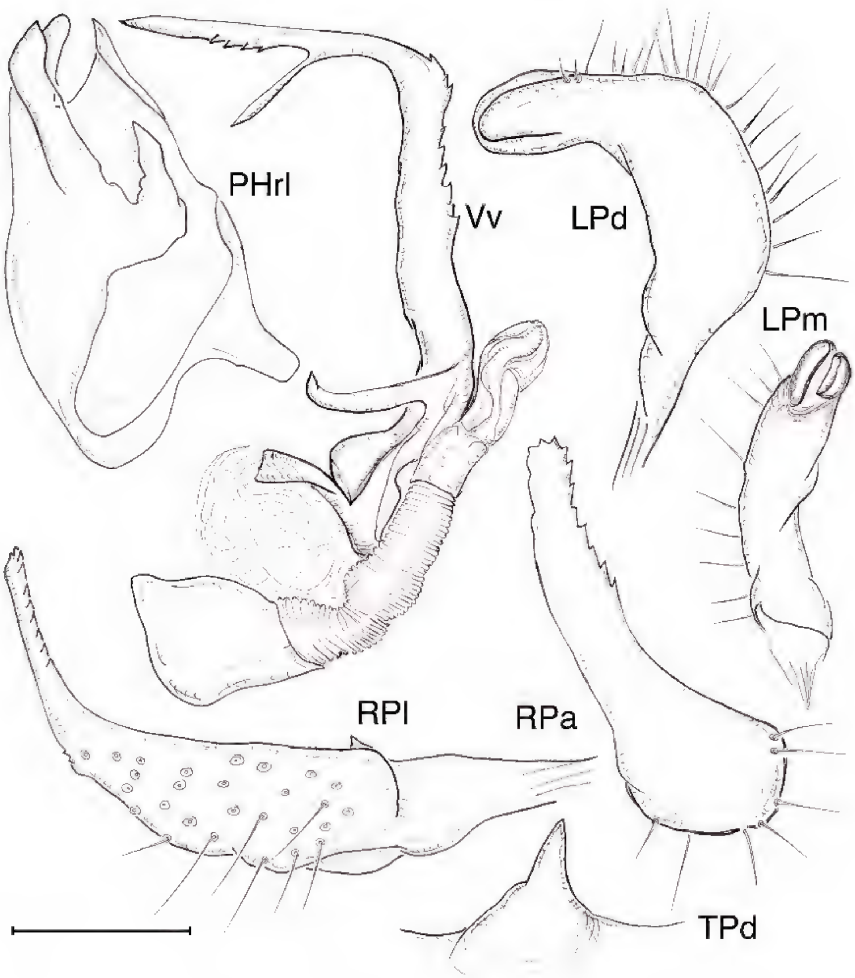

Fig. 29. Male genitalia of *Jornandes rachelleae*, 7.3 mi SW of Izucar de Matamoros (AMNH_PBI 00118197); scale = 0.20 mm.

in size between males and females is striking, with females smaller than males; the intersex difference is greater than that in any other species of the genus, although it is reduced in specimens from Guanajuato and Querétaro. The color pattern of the head is very similar to that of *J. cruralis* and several other species of the genus in having a fuscous band running from an eye, along the length of the maxillary plate, across the apex of the clypeus and on around to the other eye. The cuticular sculpturing of the corium is clearly seen and a few setae are found on the membrane of the hemelytron. We have material from regions north and south of Mexico City. We consider all to be conspecific based on the limited variation in the male genitalia.

HOST PLANT: *Salvia* sp. (Lamiaceae).

ETYMOLOGY: Name in honor of the first author's daughter Rachelle.

DISTRIBUTION: Known from 10 localities in arid areas of Guerrero, Puebla, Guanajuato, and Querétaro (fig. 10E).

PARATYPES: MEXICO: **Guanajuato:** Ojo de Agua, 20.65°N 100.58333°W, 06 Sep 1969, L. A. Kelton, *Salvia* sp. (Lamiaceae), 17♂ (AMNH_PBI 00112172–AMNH_PBI 00112188), 4♀ (AMNH_PBI 00112189–AMNH_PBI 00112192), 1♂ (AMNH_PBI 00111002) (CNC). **Guerrero:** 17 mi E of Tixtla, 17.57274°N 99.21959°W, 1605 m, 11 Jul 1985, Jones and Schaffner, 1♂

(AMNH_PBI 00185227) (TAMU). 4 mi W of Chilpancingo, 17.56992°N 99.56555°W, 1506 m, 15 Jul 1984, Carroll, Schaffner, Friedlander, 1♀ (AMNH_PBI 00245172) (TAMU). 6 mi E of Xochipala, 17.7936°N 99.54263°W, 1067 m, 13 Jul 1985, Jones, Schaffner, 1♂ (AMNH_PBI 00185228) (TAMU). 6 mi NE of Tixtla de Guerrero, 17.64501°N 99.36861°W, 16 Jul 1984, Carroll, Schaffner, Friedlander, 1♂ (AMNH_PBI 00185229) (TAMU). **Puebla:** 4.4 mi SW of Acatepec, 18.98809°N 98.33118°W, 26 Jul 1974, Clark, Murray, Ashe, Schaffner, 1♂ (AMNH_PBI 00185230), 1♀ (AMNH_PBI 00185231) (TAMU). 5 mi SE of Izucar de Matamoros, 18.54858°N 98.41242°W, 20 Jul 1984, Carroll, Schaffner, Friedlander, 1♂ (AMNH_PBI 00185232) (TAMU). 7.3 mi SW of Izucar de Matamoros, 18.52184°N 98.57917°W, 22 Jul 1981, Bogar, Schaffner and Friedlander, 1♂ (AMNH_PBI 00119097) (AMNH). 1♂ (AMNH_PBI 00118197), 1♀ (AMNH_PBI 00119098) (CNC). 6♂ (AMNH_PBI 00185212–AMNH_PBI 00185217), 9♀ (AMNH_PBI 00185218–AMNH_PBI 00185226) (TAMU); 01 Aug 1976, Peigler, Gruetzmacher, R. and M. Murray, Schaffner, 1♂ (AMNH_PBI 00185209), 2♀ (AMNH_PBI 00185210, AMNH_PBI 00185211) (TAMU). Chila, 20.3°N 98.2°W, 1200 m, 25 Aug 1969, L. A. Kelton, 3♀ (AMNH_PBI 00112209–AMNH_PBI 00112211) (CNC). **Queretaro:** Queretaro, 20.6°N 100.38333°W, 1868 m, 04 Sep 1969, L. A. Kelton, *Salvia* sp. (Lamiaceae), 13♂ (AMNH_PBI 00112196–AMNH_PBI 00112208) (CNC).

Jornandes rileyi, new species
Figures 3, 10A, 30

HOLOTYPE: ♀, MEXICO: **Baja California Sur:** 14.4 mi E on Ramal a Los Naranjo [23.25661°N 109.91648°W, 1101 m], IX-16-88, E. G. Riley, black light (AMNH_PBI 00184928). Department of Entomology, Texas A&M University, College Station, Texas.

DIAGNOSIS: Recognized by body, including antennae and legs, shining reddish fuscous to black except for pale band extending across posterior margin of pronotum (fig. 3); frons rounded; vertex clearly wider than length of antennal segment I; labium reaching mesocoxa or slightly beyond; width of pronotum greater than length of antennal segment II; robust with costal margins of hemelytron curved; metepisternum dorsal to evaporative area of scent gland with microtrichia.

DESCRIPTION: *Male*: COLORATION: Generally dark reddish fuscous to black with posterior margin of pronotum almost white. Corium appearing brown in translucent areas but dark fuscous or black as seen from side. Underside, antennae, labium, and legs reddish fuscous to black. VESTITURE: Head, pronotum, and corium shining with widely scattered, short, inconspicuous, dark-colored setae; setae on antennal segments II–IV semierect and not significantly longer than diameter of respective segments; decumbent setae on underside of abdomen denser and longer. GENITALIA (fig. 30): **Genital segment** with single small, pointed tergal process projecting from midline of dorsal margin of aperture; ventroposterior margin of capsule flangelike with medial cleft, distal width of subgenital plate narrow, projecting strongly dorsal to aperture of capsule. **Left paramere** C-shaped in dorsal view; without sensory lobe; diameter of paramere gradually expanded distally to mittenlike apex. **Right paramere** larger than left paramere; with long, narrow, strongly attenuate sensory lobe and paramere body, apices minutely serrate. **Phallotheca** elongate, cone shaped, equal to length of spiculum; aperture wide, open on right side, dorsal margin, and apex. **Vesica** with one long, medially thickened spiculum, situated on dorsal surface of ductus seminis; apical region of spiculum recurved, attenuate, strongly serrate, distal region almost 1/3 length of spiculum; base of spiculum with large process reaching to 1/2 length of main body of spiculum more distal to smaller flattened rectangular basal process.

Females: Slightly larger than males; color and vestiture as for male.

MEASUREMENTS: *Male* (n = 2): Length, 2.40 and 2.70; width, 1.30 and 1.56. Head length, 0.24 and 0.26; width, 0.72 and 0.80; vertex width, 0.36 and 0.38. Length of antennal segment I, 0.24 (remaining segments missing). Pronotal length, 0.56 and 0.68; width across base, 1.10 and 1.30. Cuneal length, 0.48 and 0.52; width across base, 0.48 and 0.50.

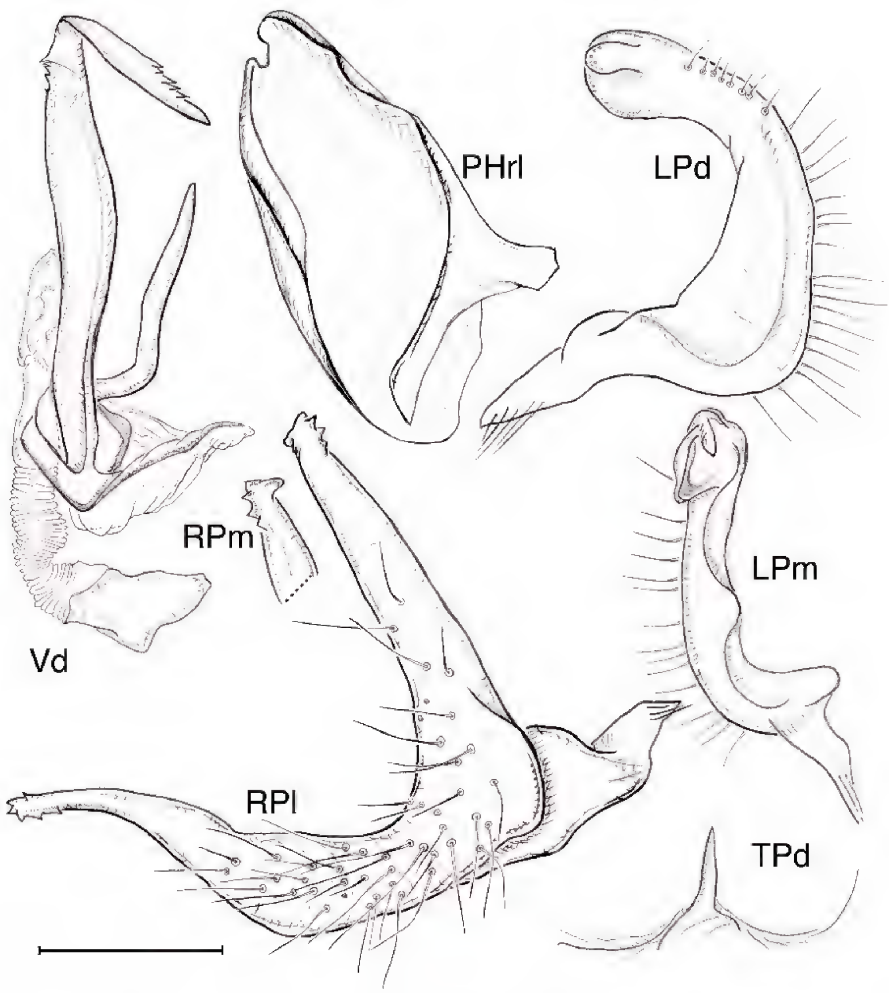

Fig. 30. Male genitalia of *Jornandes rileyi*, 14.4 mi E on Ramal a Los Naranjo, Baja California Sur (AMNH_PBI 00118211); scale = 0.20 mm.

Female (n = 4; those of holotype given first followed in parentheses by average and range): Length, 2.64 (2.74, 2.64–2.80); width, 1.80 (all). Head length, 0.24 (0.24, 0.20–0.25); width; 0.84 (0.83, 0.80–0.84); vertex width, 0.42 (0.42, 0.40–0.42). Length of antennal segment I, 0.28 (0.24, 0.22–0.28); II, 0.84 (single paratype, 0.80); III, 0.54 (holotype only); IV, missing. Pronotal length 0.80 (0.76, 0.64–0.80); width across base, 1.36 (1.34, 1.30–1.38). Cuneal length, 0.54, 0.54, 0.50–0.58); width across base, 0.50 (0.50, 0.48–0.50).

DISCUSSION: The unique color pattern distinguishes this species from all others of the genus. The reddish fuscous to black pronotum has a whitish broad band along the posterior margin. Curiously, the same distinctive color pattern is exhibited by some specimens of *Scalponotatus albibasis* (Knight), which occurs in southwestern U. S. and northwestern Mexico. The typical *Jornandes* type of sculpturing is easily seen, whereas *S. albibasis* has a roughened dorsum. All specimens were collected into alcohol at light. No setae were present on the hemelytral membrane. This is the only known species of *Jornandes* occurring in Baja California Sur. A female was selected as holotype because it was better preserved than any of the three available males.

HOST PLANT: Unknown.

ETYMOLOGY: Named for E. G. Riley from Texas A&M University who collected all the specimens of this species.

DISTRIBUTION: Known only from the type series from Baja California Sur (fig. 10A).

PARATYPES: MEXICO: **Baja California Sur:** 14.4 mi E on Ramal a Los Naranjos, 23.25661°N 109.91648°W, 1101 m, 16 Sep 1988, E. G. Riley, black light, 1♀ (AMNH_PBI 00119110), 1♂ (AMNH_PBI 00118211) (CNC). 1♂ (AMNH_PBI 00094301), 1♀ (AMNH_PBI 00094302), 1♂ (AMNH_PBI 00184787), 2♀ (AMNH_PBI 00184788, AMNH_PBI 00184789) (TAMU).

Jornandes robustus, new species
Figures 3, 10B, 31

HOLOTYPE: ♂, MEXICO: **Puebla:** 4 mi W of Acatepec [19.03332°N 98.34485°W], July 26, 1973, Mastro & Schaffner (AMNH_PBI 00184929). Deposited in the collection of the Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City, D.F.

DIAGNOSIS: Recognized by head pale yellowish brown to brown with maxillary plate, sometimes mandibular plate, and clypeus dark fuscous, antennal segments variable in color, pronotum yellowish brown with posterior margin usually paler, hemelytron dark fuscous to black with extreme base usually more or less yellowish brown, femora dark fuscous except at extreme apices, tibiae pale, hind tibiae fuscous at base (fig. 3); vertex clearly wider than length of antennal segment I; labium not reaching posterior margin of mesocoxa; width of pronotum greater than length of antennal segment II; metepisternum dorsal to evaporative area of scent gland with microtrichia. The overall color pattern is similar to that of *J. genetivus*, *J. tehuacanensis*, and *J. nathani*, although *J. robustus* is larger than the other species.

DESCRIPTION: *Male*: COLORATION: Generally yellowish brown and dark fuscous to black. Head pale yellowish brown to brown with maxillary plate, sometimes mandibular plate, and clypeus dark fuscous; antennal coloration rarely all dark fuscous, more frequently with segment I pale with fuscous areas at base and or apex, segment II often pale at base, fuscous apically; labium with segments I and basal part of II dark fuscous, segment IV dark fuscous to black. Pronotum yellowish brown, posterior margin of dorsum usually paler, lateral margin often with reddish tinge or reddish narrow line. Mesoscutum, scutellum, hemelytron, and abdomen dark fuscous to black, xyphus pale fuscous. Propleuron adjacent to coxa pale fuscous, dorsal area of mesopleuron yellowish brown, remainder of mesopleuron and mesosternum dark fuscous; metapleuron yellowish brown with pale fuscous areas, evaporatorium pale fuscous. Coxa and trochanter pale fuscous, femur dark fuscous often pale at juncture with tibiae, tibiae and basal tarsomeres pale, base of hind tibia and remaining tarsomeres dark fuscous. VESTITURE: Head and thorax, except for appendages, almost devoid of setae, corium with scattered short inconspicuous setae with longer setae on embolium; setae on antennal segments II–IV decumbent, not longer than diameter of respective segment; semierect setae of tibiae as long or slightly longer than respective tibia; decumbent setae of abdomen long and more dense. GENITALIA (fig. 31): **Genital segment** with bifurcate tergal process projecting from right side of midline of dorsal margin of aperture; main portion of process with short dorsal spine and long curved ventral spine reaching into aperture, base of process with two tubercles on dorsal surface of capsule; ventroposterior margin of capsule cleft; subgenital plate prominent, strongly protruding distally beyond aperture of capsule. **Left paramere** C-shaped in dorsal view; with broad, tumid sensory lobe; diameter of paramere wide, gradually expanded to mitten-shaped apex. **Right paramere** large, just twice as long as left paramere; diameter of paramere gradually thickened from base to medial region, shaft distal to middle, 1/2 as long as entire length of paramere, with strong spines on medial surface and pointed apex. **Phallotheca** cone shaped, 1/2 length of spiculum; aperture convoluted, open on right side with deep ventral notch and on dorsal margin, apex, and right margin. **Vesica** with one long, sinuate, needlelike spiculum, base situated on dorsal surface of ductus seminis; medial

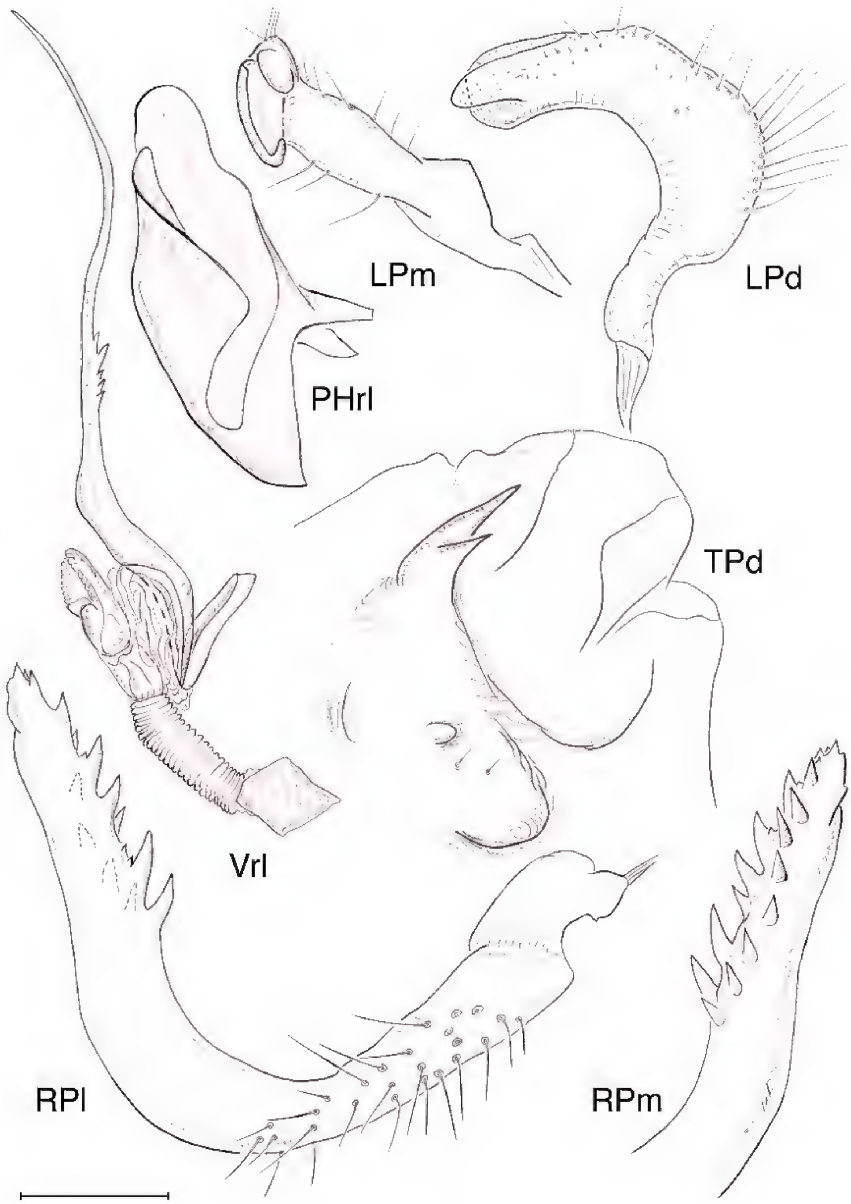

Fig. 31. Male genitalia of *Jornandes robustus*, 4.4 mi SW of Acatepec, Puebla (AMNH_PBI 00118206); scale = 0.20 mm.

region of spiculum with several spinules; base of spiculum with short, flattened, truncate process.

Female: Antennal segment II usually dark fuscous apically, otherwise color and vestiture same as for male; lateral margin of pronotum less likely to have reddish tinge or line.

MEASUREMENTS: *Male* (n = 8; those of holotype given first followed in parentheses by average and range): Length, 4.30 (4.29, 4.02–4.54); width, 2.00 (2.04, 1.94–2.12). Head length, 0.22 (0.22, 0.18–0.24; width, 0.98 (0.97, 0.94–0.98); vertex width, 0.42 (0.41, 0.40–0.42). Length of antennal segment I, 0.32 (0.30, 0.28–0.32); II, 1.26 (1.22, 1.12–

1.28); III, 0.94 (0.84, 0.72–0.94); IV, 0.42 (0.43, 0.42–0.44). Pronotal length, 0.74 (0.76, 0.72–0.82); width across base, 1.50 (1.49, 1.46–1.50). Cuneal length, 0.84 (0.82, 0.78–0.86); width across base, 0.70 (0.70, 0.68–0.72).

Female (n = 9; average given first followed in parentheses by range): Length, 4.06 (3.70–4.28); width, 2.06 (1.96–2.18). Head length 0.27 (0.24–0.30); width, 1.00 (0.98–1.04); vertex width, 0.47 (0.44–0.48). Length of antennal segment I, 0.28 (0.26–0.30); II, 1.20 (1.14–1.24); III, 0.79 (0.74–0.84); IV, 0.42 (0.36–0.46). Pronotal length, 0.80 (0.76–0.82); width across base, 1.55 (1.48–1.62). Cuneal length, 0.68 (0.66–0.72); width across base, 0.74 (0.70–0.80).

DISCUSSION: The setae on the dorsum are sparse, short, and inconspicious except in the cuneal area of the corium. The hemelytral membrane is devoid of setae. Specimens are strongly shining and the sculpturing is easily seen. The maxillary plate is dark fuscous as is the case of many species of the genus; however, the band stretching over the maxillary plates and clypeus is sometimes obscured by the darker coloration on the mandibular plate and surrounding areas. *Jornandes robustus* is similar to *J. rachelleae*. The posterior margin of the mesepimeron and anterior area of metepisternum are yellowish brown, whereas these areas are fuscous to black in *J. rachelleae*.

HOST PLANT: Unknown.

ETYMOLOGY: Named for its relatively robust appearance.

DISTRIBUTION: Known from four localities in western Puebla near the border with Oaxaca and central Oaxaca (fig. 10B).

PARATYPES: MEXICO: **Oaxaca:** 3 mi SE of Matatlan (Microondas road), 16.83581°N 96.35109°W, 2027 m, 17 Jul 1987, Kovarik and Schaffner, 1♀ (AMNH_PBI 00245159) (TAMU). **Puebla:** 4 mi W of Acatepec, 19.03332°N 98.34485°W, 26 Jul 1973, Mastro and Schaffner, 1♂ (AMNH_PBI 00094271), 1♀ (AMNH_PBI 00119080) (CNC). 4♂ (AMNH_PBI 00119079, AMNH_PBI 00185041–AMNH_PBI 00185043), 6♀ (AMNH_PBI 00185044–AMNH_PBI 00185049) (TAMU). 4.4 mi SW of Acatepec, 18.98809°N 98.33118°W, 26 Jul 1974, Clark, Murray, Ashe, Schaffner, 2♂ (AMNH_PBI 00118206, AMNH_PBI 00185038) (CNC). 3♀ (AMNH_PBI 00245171, AMNH_PBI 00185039, AMNH_PBI 00185040) (TAMU). 4.4 mi SW of Acatepec, 18.98809°N 98.33118°W, 26 Jul 1974, Clark, Murray, Ashe, Schaffner, 1♂ (AMNH_PBI 00118206) (CNC). 5 mi N of Tehuacan, 18.56226°N 97.41329°W, 1901 m, 03 Aug 1966, J. and W. Ivie, 2♀ (AMNH_PBI 00108437, AMNH_PBI 00108438) (AMNH).

Jornandes sinaloa (Carvalho), new combination
Figures 3, 10A, 32

Rhinocapsidea sinaloa Carvalho, 1987: 232, figs. 23–26 (orig. desc.); Schuh, 1995: 192 (catalog).

DIAGNOSIS: Recognized by uniform pale yellowish brown coloration over entire body except eyes; dorsum practically glabrous; vertex width greater than length of antennal segment I; labium not reaching mesocoxa; width of pronotum greater than length of antennal segment II; metepisternum dorsal to evaporative area of scent gland with microtrichia. Similar to *J. cruralis* and *J. genetivus* in the large body, parallel-sided costal margins, vesical spiculum with bifurcated terminal branches, long right paramere, and mostly spinose tergal processes (in *J. cruralis*).

REDESCRIPTION: *Male*: COLORATION: Generally pale yellowish brown with areas on veins and apices of tarsi fuscous. Membrane as pale as remainder of hemelytron (fig. 3). VESTITURE: Sparse, short, suberect setae. Head and thorax, except appendages with short setae; scutellum and hemelytron almost devoid of setae, setae most easily observed on embolium and near anterior portion of clavus suture; antenna segment I pale, lacking subapical fuscous ring; semierect setae on tibiae about as long as diameter of respective tibia; decumbent setae of abdomen long and more dense. GENITALIA (fig. 32): **Genital segment** with short, spinose tergal process projecting from right side of midline of dorsal margin of aperture; ventroposterior margin of capsule with smooth notch, subgenital plate deep, not projecting beyond aperture of capsule. **Left paramere** C-shaped in dorsal view; sensory lobe not produced, diameter of paramere wide, gradually ex-

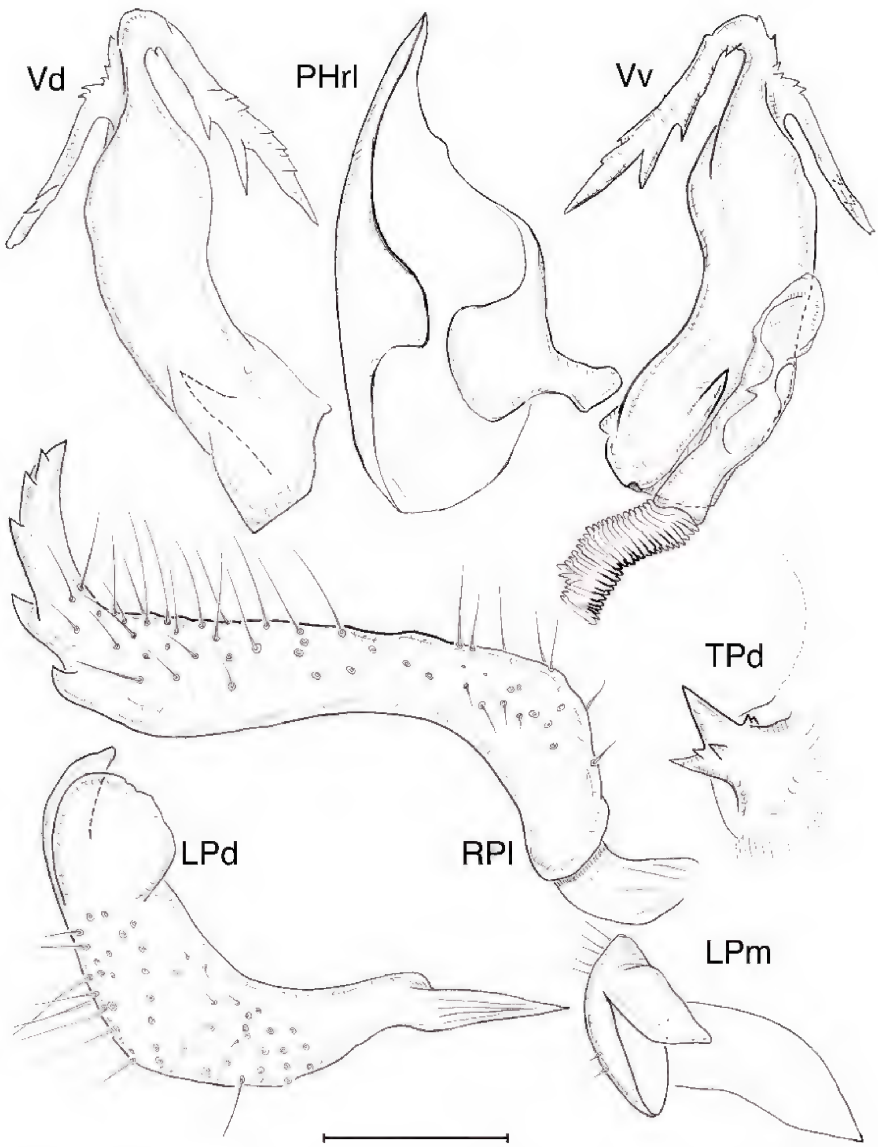

Fig. 32. Male genitalia of *Jornandes sinaloa*, 7 mi W of Alamos, Sonora (AMNH_PBI 00118208); scale = 0.20 mm.

panded to wide mitten-shaped apex. **Right paramere** twice as long as left paramere; diameter of paramere thick basally and medially, distal region curved dorsally, spinose, attenuate to pointed apex. **Phallotheca** small, cone shaped, 2/3 length of spiculum; aperture ovoid, open at apex. **Vesica** small; spiculum stout, moderately sinuate, trunk-like, base situated widely on dorsal surface of ductus seminis; distal region with narrow, bifurcate, recurved, serrate branches, longest branch reaching to about middle of spiculum; base of spiculum with small, narrow, pointed process behind ductus seminis on left side.

Female: Frons more broadly curved and body wider than male; otherwise color and vestiture same as for male.

MEASUREMENTS: *Male*: (n = 3; average and range): Length, 3.83 (3.55–4.08); width, 1.48 (1.43–1.50). Head length, 0.24 (0.24–0.25); width, 0.90 (0.88–0.92); vertex width, 0.40 (0.39–0.40). Length of antennal

segment I, 0.36 (all), II 1.20 (n = 1), remaining segments of all specimens missing. Pronotal length, 0.74 (0.71–0.76); width across base, 1.24 (1.20–1.28). Cuneal length, 0.61 (0.56–0.64); width across base, 0.47 (0.45–0.50).

Female: (n = 2; average and range): Length, 4.10 (4.00–4.20); width, 1.78 (1.70–1.85). Head length, 0.29 (0.28–0.29); width, 0.91 (0.90–0.91); vertex width, 0.45 (0.44–0.46). Length of antennal segment I, 0.36 (0.35–0.36); II, 1.31 (1.28–1.33); III, 0.88; IV, 0.38. Pronotal length, 0.79 (0.78–0.80); width across base, 1.38 (both). Cuneal length, 0.60 (0.59–0.60); width across base, 0.51 (0.50–0.51).

DISCUSSION: Carvalho (1987) described this species based on four females and 39 males; we have examined the paratypes listed below. Although all features of the male genitalia are of similar form in *J. sinaloa*, *J. cruralis*, and *J. genetivus*, the uniform pale yellowish-brown coloration distinguishes *J. sinaloa* from its congeners. More closely related to *J. cruralis* than to *J. genetivus* by virtue of the serrate tergal process and dorsally projecting distal portion of the right paramere. *Jornandes sinaloa* has a small spine on the left side of the basal margin of the vesical spiculum, *J. cruralis* lacks this spine.

HOST PLANT: Unknown.

DISTRIBUTION: Known from two localities in southern Sinaloa and Sonora (fig. 10A).

SPECIMENS EXAMINED: MEXICO: **Sinaloa:** 26 mi N of Pericos, 26.47587°N 107.46666°W, 13 Aug 1960, P. H. Arnaud Jr., E. S. Ross, D. C. Rentz, Paratypes, 4♂ (AMNH_PBI 00121814–AMNH_PBI 00121817), 1♀ (AMNH_PBI 00121818) (CAS). Paratype, 1♂ (AMNH_PBI 00107583) (USNM). **Sonora:** 7 mi W of Alamos, 27.02836°N 108.99468°W, 580 m, 08 Aug 1964, Unknown, 1♂ (AMNH_PBI 00106415) (TAMU). 2♂ (AMNH_PBI 00118208, AMNH_PBI 00119458), 1♀ (AMNH_PBI 00119459) (UCB).

Jornandes susanae, new species
Figures 3, 10D, 33

HOLOTYPE: ♂, MEXICO: **Guerrero:** 18.2 mi S of Iguala [17.5739°N 100.36666°W], elev. 3,000 ft [914 m], July 5, 1987, Kovarik, Schaffner (AMNH_PBI 00184930). Deposited in the collection of the Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City, D.F.

DIAGNOSIS: Recognized by antennal segment I being primarily yellowish brown, with head, remaining segments fuscous to dark fuscous, anterior 2/3 of pronotum yellowish brown with remainder whitish or pale, scutellum and adjacent areas of clavus dark fuscous to black, corium pale with prominent dark fuscous band more or less parallel to claval suture from embolium to inner corner of cuneus, apex of cuneus dark fuscous, legs mainly pale yellowish brown (fig. 3); eye large in male; antennal segment I more or less subequal to vertex width; antennal segment II linear, about as long as width of pronotum; labium short, reaching procoxa; metepisternum dorsal to evaporative area of scent gland with microtrichia. Base coloration, but not pattern, similar to *J. ceibae*. Distinguished by the color of the scutellum: *J. susanae* has a dark scutellum whereas in *J. ceibae* it is pale. *Jornandes ceibae* and *J. susanae* also share certain male genitalic features (see discussion of *J. ceibae*).

DESCRIPTION: *Male*: COLORATION: Generally boldly patterned with yellowish brown, white, and black. Head yellowish brown to brown; clypeus dark fuscous except at base, maxillary plate fuscous; basal antennal segment of head with some pale fuscous spots or partial rings especially at apex, remaining segments dark fuscous; labium pale brown with both base and apex dark fuscous. Pronotum with anterior 2/3 yellowish brown, remainder whitish or pale. Mesoscutum pale brown, scutellum dark fuscous to black. Corium pale with dark fuscous areas consisting of a broad band on clavus immediately adjacent to scutellum and another broad band along radial vein area that begins at emboliar suture and extends posteriorly to cuneal suture and membrane; emboliar area pale brown; cuneus whitish with apex dark fuscous; membrane pale with margin fuscous forming a band on apex of membrane, areolar veins dark fuscous. Legs pale brown with a pale fuscous spot near apex of hind femur; tarsi dark fuscus apically. Propleuron pale brown, paler pos-

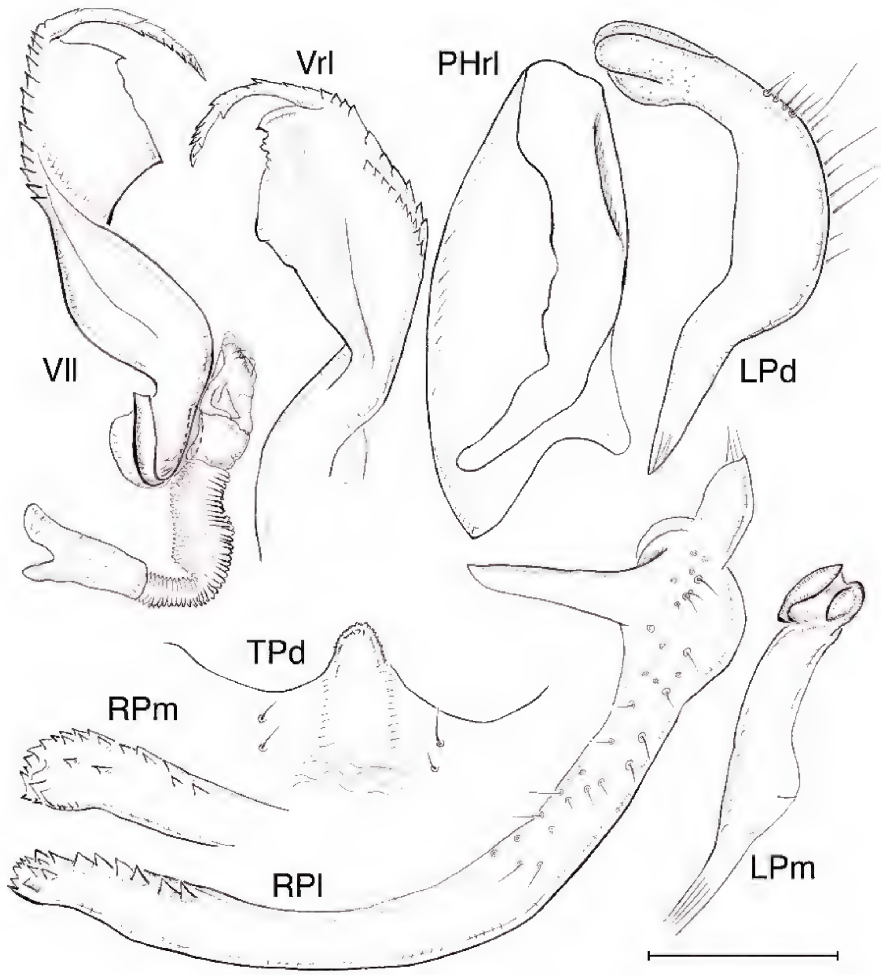

Fig. 33. Male genitalia of *Jornandes susanae*, 18.2 mi S of Iguala, Guerrero (AMNH_PBI 00118200); scale = 0.20 mm.

teriorly; mesopleuron and sternum shining dark fuscous; metapleuron pale brown with evaporative area dark fuscous; underside of abdomen pale brown with fuscous to dark fuscous areas especially behind metacoxa. VESTITURE: Head and thorax, except for appendages, with very short, mostly decumbent setae, those of corium more or less evenly distributed, sparse, setae not longer than diameter of antennal segment II; setae on antennal segments II–IV not longer than diameter of respective segments; semierect setae of tibiae about as long as diameter of respective tibia, decumbent setae of abdomen long and more dense. GENITALIA (fig. 33): **Genital segment** with short, but broadly projecting tergal process from midline of dorsal margin of aperture, entire margin or process minutely serrate; ventroposterior margin of capsule with acute notch, subgenital plate asymmetrically positioned toward left paramere fossa, distal portion projecting dorsal to aperture. **Left paramere** C-shaped in dorsal view; sensory lobe slightly produced, paramere with moderately wide diameter, gradually expanded to wider mitten-shaped apex, beyond subapical constriction. **Right paramere** three times as long as left paramere; diameter widest at base, sensory lobe with long, narrow, smooth, apically pointed process; remainder of paramere, long, tubelike with uniform diameter throughout, apex

broadly rounded with surface on minute spinules. **Phallotheca** subrectangular, sinuate, length equal to length of spiculum; aperture wide, open from middle of right side to broadly open apex. **Vesica** small; spiculum stout, sinuate, and trunklike, base situated widely on dorsal surface of ductus seminis; base of spiculum without process; distal region greatly expanded, dorsal margin with row of spinules and narrow, serrate, subapical spine.

Female: Color and vestiture same as for male; sometimes antennal segment II broadly pale except at base and variable distal region.

MEASUREMENTS: *Male*: (n = 20; holotype given first followed in parentheses by average and range): Length, 3.46 (3.54, 3.36–3.82); width, 1.48 (1.53, 1.46–1.60). Head length, 0.22 (0.22, 0.18–0.26); width, 0.92 (0.91, 0.88–0.94); vertex width, 0.28 (0.28, 0.26–0.32). Length of antennal segment I, 0.30 (0.33, 0.30–0.36); II, 1.18 (1.22, 1.14–1.32); III, 1.02 (0.99, 0.94–1.12); IV, 0.48 (0.47, 0.42–0.56). Pronotal length, 0.58 (0.61, 0.56–0.64); width across base, 1.22 (1.22, 1.16–1.26). Cuneal length, 0.60 (0.61, 0.56–0.62); width across base, 0.48 (0.50, 0.46–0.54).

Female (n = 20; average given first followed in parentheses by range): Length, 3.60 (3.46–3.82) width, 1.65 (1.56–1.84). Head length, 0.22 (0.20–0.24); width, 0.89 (0.86–0.90); vertex width, 0.34 (0.32–0.36). Length of antennal segment I, 0.33 (0.30–0.34); II, 1.23 (1.16–1.34); III, 0.97 (0.88–1.06); IV, 0.49 (0.42–0.52). Pronotal length, 0.64 (0.60–0.68); width across base, 1.30 (1.24–1.48). Cuneal length, 0.61 (0.56–0.64); width across base, 0.53 (0.52–0.56).

DISCUSSION: The attractive color pattern found in *J. susanae* is unique among members of the genus. It is similar to that of *J. ceibae* in that the coloration (off-white and dark fuscous) is the same although the patterns are somewhat different. The head has a color pattern that is similar to that of *J. cruralis* and several other species and that consists of a fuscous band running from the anterior margin of an eye, along the maxillary plate, across the apex of the clypeus, and around to the other eye. *Jornandes susanae* is one of a few species in which antennal segment I is subequal in length to the width of the vertex. In addition, it is one of three species having antennal segment II subequal in length with the width of the pronotum. The sculpturing of the corium is easily seen; the setae on the corium are short and sometimes the hemelytral membrane has two or three setae. The medial tergal process, sinuate vesical spiculum, narrow apical notch of the left paramere of the male genitalia are shared with *J. ceibae*; however, the wider tergal process, the wider medial region of the vesical spiculum and elongate right paramere are diagnostic of *J. susanae*.

HOST PLANT: Unknown.

ETYMOLOGY: Name to honor the first author's daughter Susan.

DISTRIBUTION: Known from two localities in central Guerrero (fig. 10D).

PARATYPES: MEXICO: **Guerrero:** 18.2 mi S of Iguala, 17.5739°N 100.36666°W, 914 m, 05 Jul 1987, Kovarik and Schaffner, 1♂ (AMNH_PBI 00119103) (AMNH). 3♂ (AMNH_PBI 00118200, AMNH_PBI 00184619–AMNH_PBI 00184620), 1♀ (AMNH_PBI 00184621) (CNC). 13♂ (AMNH_PBI 00185058–AMNH_PBI 00185063, AMNH_PBI 00185069–AMNH_PBI 00185075), 22♀ (AMNH_PBI 00184622, AMNH_PBI 00185076–AMNH_PBI 00185096) (TAMU). 6 mi E of Xochipala, 17.7936°N 99.54263°W, 1067 m, 13 Jul 1985, Jones, Schaffner, 1♂ (AMNH_PBI 00185053), 1♀ (AMNH_PBI 00185054) (TAMU); 18 Jul 1984, J. B. Woolley, 1♀ (AMNH_PBI 00119104) (CNC). 2♂ (AMNH_PBI 00185067, AMNH_PBI 00185068), 3♀ (AMNH_PBI 00185050–AMNH_PBI 00185052) (TAMU); 05 Jul 1987–06 Jul 1987, Kovarik and Schaffner, 2♂ (AMNH_PBI 00185056, AMNH_PBI 00185057) (TAMU); 13 Jul 1985, J. B. Woolley and G. Zolnerowich, 2♂ (AMNH_PBI 00185055, AMNH_PBI 00185064), 2♀ (AMNH_PBI 00185065, AMNH_PBI 00185066) (TAMU).

Jornandes tehuacanensis, new species
Figures 4, 10A, 19C, 34

HOLOTYPE: ♂, MEXICO: **Puebla:** 6 mi SW of Tehuacan [18.3883°N 97.44836°W], August 9, 1980, Schaffner, Weaver, Friedlander, Taken on *Desmanthus nervosus* (B. & R.) Rudd, det. Oswaldo Tellez, [19]'88.

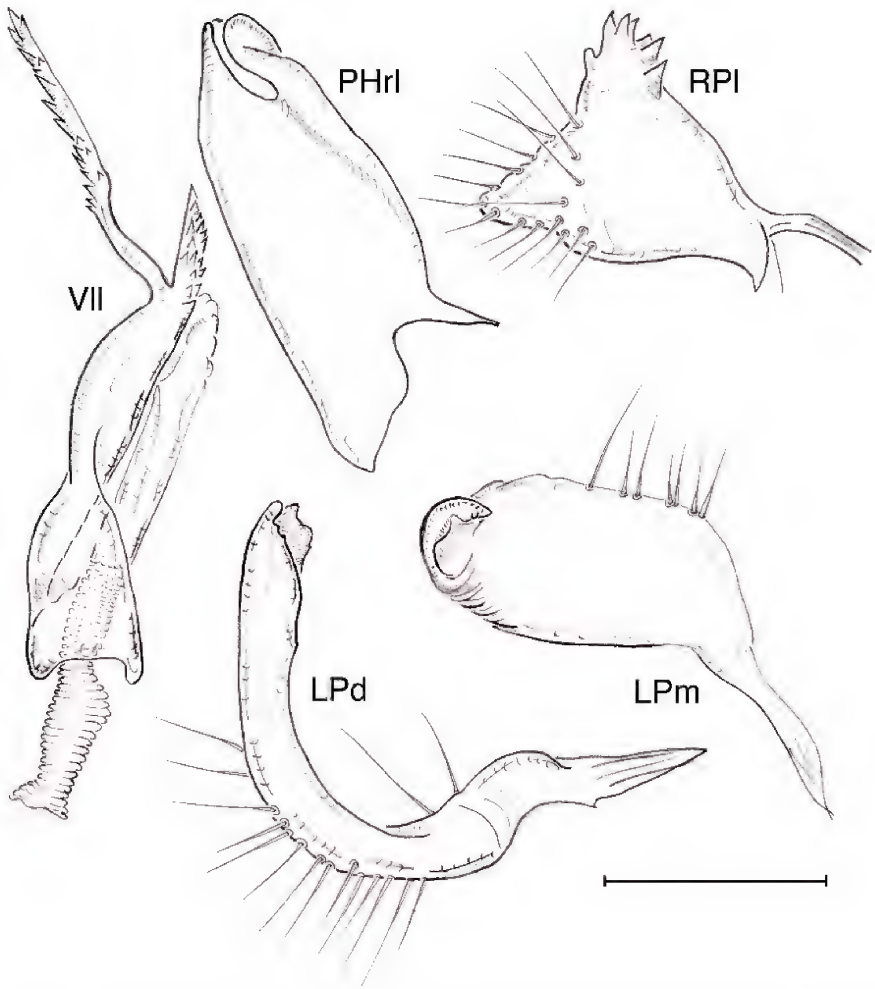

Fig. 34. Male genitalia of *Jornandes tehuacanensis*, 6 mi SW of Tehuacan, Puebla (AMNH_PBI 00118193); scale = 0.20 mm.

Deposited in the collection of the Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City, D.F.

DIAGNOSIS: Recognized by head, pronotum, and legs primarily yellowish brown, hemelytron and remainder of body dark fuscous to black; antennal segments pale, dark fuscous at apex, remaining segments dark fuscous (fig. 4); frons broadly rounded; vestiture of scutellum and corium rather evenly distributed with conspicuous short decumbent setae; vertex clearly wider than length of antennal segment I; labium reaching or almost reaching mesocoxa; width of pronotum greater than length of antennal segment II; metepisternum with microtrichia extending dorsal to evaporative area to varying degrees; genital segment of male without tergal process. Similar in coloration to *J. nathani*, but distinguished by the coloration of antennal segment II. In *J. tehuacanensis* segment II is dark fuscous or black basally and apically with a pale medial area. In *J. nathani* the antennal segment II is pale. In *J. nathani* the eye is larger in the male. The eye of *J. tehuacanensis* is not sexually dimorphic. The male genitalia of *J. tehuacanensis* are most similar to *J. mimosae*.

DESCRIPTION: *Male*: COLORATION: Generally yellowish brown and dark fuscous

to black. Head yellowish brown with clypeus and sometimes maxillary plate pale fuscous; antennal segment I pale, fuscous at apex, remaining segments dark fuscous to black; labium brown to fuscous. Pronotum yellowish brown; remainder of thorax including hemelytron dark fuscous to black. Legs usually yellowish brown with bases of trochanters, apices of tibiae, and all tarsomeres fuscous. Underside of abdomen dark fuscous to black. VESTITURE: Head, pronotum, sides of thorax with very sparse, scattered setae semierect to erect and about as long as diameter of antennal segment II; decumbent setae evenly distributed on scutellum and corium, not longer than width of antennal segment II; setae of varying lengths on underside of abdomen. GENITALIA (fig. 34): **Genital segment** without tergal processes, dorsal margin of aperture well-sclerotized, with dense bristlelike setae; ventroposterior margin of capsule with acute notch; distal width of subgenital plate narrow, dorsal margin of plate slightly projecting beyond aperture of capsule. **Left paramere** C-shaped in dorsal view; sensory lobe minimally produced, noted by long setae; diameter mostly evenly wide, narrowed subdistally, expanded to mitten-shaped apex. **Right paramere** shorter than left paramere, densely covered with long setae; diameter of paramere thick basally; sensory lobe broadly blunt, marginally crested with round-tipped tubercles, distal region of paramere relatively short, with blunt apex. **Phallotheca** rectangular, convoluted, equal to 2/3 length of spiculum; aperture small, restricted to narrow crescent-shaped distal opening. **Vesica** with moderately long, convoluted spiculum; distal region consisting of serrate, needlelike branch on right side, flanked on left side by strongly serrate crest, base convoluted, situated on dorsal surface of hoselike part of ductus seminis, sclerotized distal region of ductus long, reaching to bifurcated portion of body of spiculum; base of spiculum without tubercle.

Female: Noticeably shorter than males, except for single specimen, antennal segment II with pale band near middle, otherwise similar in color and vestiture as on male. GENITALIA with ventral margin of VLP not produced ventrally into VUL; GP8 with tubercle projected immediately ventral to medial surface of subgenital plate (fig. 19C, arrow); SR relatively small ovoid along longitudinal axis; medial region of DLP well-sclerotized moderately large, somewhat quadrate; posterior wall with well-sclerotized, somewhat convex medial section, moderately elongate in vertical plane; IRL incised on ventral margin, both ventral and dorsal portions pointed, dorsal portion shorter than ventral portion; otherwise as in generic description.

MEASUREMENTS: *Male* (n = 20; those of holotype given first followed in parentheses by average and range): Length, 3.32 (3.29, 3.10–3.40); width, 1.48 (1.45, 1.40–1.50). Head length, 0.16 (0.17, 0.14–0.20); width, 0.76 (0.76, 0.74–0.78); vertex width, 0.36 (0.36, 0.34–0.36). Length of antennal segment I, 0.20 (0.21, 0.20–0.22); II, 0.86 (0.87, 0.82–0.92); III, 0.62 (0.61, 0.58–0.66); IV, 0.30 (0.29, 0.26–0.32). Pronotal length, 0.60 (0.58, 0.54–0.62); width across base, 1.20 (1.18, 1.12–1.22). Cuneal length, 0.60 (0.62, 0.58–0.66); width across base, 0.52 (0.52, 0.48–0.54).

Female (n = 14; average given first followed in parentheses by range): Length, 2.84 (2.74–2.94); width, 1.49 (1.38–1.56). Head length, 0.19 (0.16–0.22); width, 0.76 (0.74–0.78); vertex width, 0.40 (0.38–0.42). Length of antennal segment I, 0.19 (0.18–0.20); II, 0.70 (0.66–0.72); III, 0.53 (0.52–0.54); IV, 0.28 (0.24–0.30). Pronotal length, 0.59 (0.56–0.60); width across base, 1.15 (1.08–1.18). Cuneal length, 0.48 (0.46–0.50); width across base, 0.53 (0.50–0.56).

DISCUSSION: The maxillary plate is variable in color, ranging from concolorous with the frons, to more commonly with a posterior dark spot near the eye, and occasionally completely fuscous. The dark maxillary plate pattern is shared with many other species within the genus. Antennal segments II–IV have some semierect setae that are about equal in length to the diameter of the segment.

Membrane of the hemelytron rarely with a few setae. The cuticular sculpturing is prominent. This species is most similar to *J. nathani*. These similarities include general coloration as well as the characteristic vestiture of the scutellum and corium consisting of evenly distributed, short, decumbent setae. The male genitalia have features

similar to those seen in *J. mimosae* but differ in fine structure of the vesical spiculum and right paramere. The female from Oaxaca was omitted from the paratype series because of a slightly longer antennal segment II than in the females from Puebla and its identification could not verified with reference to the male genitalia.

HOST PLANT: *Desmanthus nervosus* (B. & R.) Rudd (Fabaceae: Mimosoideae).

ETYMOLOGY: Named after the city of Tehuacán, in the state of Puebla, near where this species is known to occur.

DISTRIBUTION: Known only from type locality in southern Puebla (fig. 10A).

PARATYPES: MEXICO: **Puebla:** 6 mi SW of Tehuacan, 18.3883°N 97.44836°W, 09 Aug 1980, Schaffner, Weaver, Friedlander, *Desmanthus nervosus* (B. & R.) Rudd. (Fabaceae-Mimosaceae), 1♀ (AMNH_PBI 00185125) (AMNH). *Desmanthus nervosus* (B. & R.) Rudd. (Fabaceae-Mimosaceae), 3♂ (AMNH_PBI 00094279, AMNH_PBI 00118193, AMNH_PBI 00185110), 1♀ (AMNH_PBI 00119090) (CNC). *Desmanthus nervosus* (B. & R.) Rudd. (Fabaceae-Mimosaceae), 21♂ (AMNH_PBI 00185097–AMNH_PBI 00185109, AMNH_PBI 00185111–AMNH_PBI 00185118), 8♀ (AMNH_PBI 00185119–AMNH_PBI 00185124, AMNH_PBI 00185126–AMNH_PBI 00185127) (TAMU); 08 Jul 1981, Bogar, Schaffner and Friedlander, *Desmanthus nervosus* (B. & R.) Rudd. (Fabaceae-Mimosaceae), 1♂ (AMNH_PBI 00119089) (AMNH). *Desmanthus nervosus* (B. & R.) Rudd. (Fabaceae-Mimosaceae), 1♀ (AMNH_PBI 00094280) (CNC). *Desmanthus nervosus* (B. & R.) Rudd. (Fabaceae-Mimosaceae), 3♂ (AMNH_PBI 00185233–AMNH_PBI 00185235), 2♀ (AMNH_PBI 00185236, AMNH_PBI 00185237) (TAMU).

ADDITIONAL SPECIMEN: MEXICO: **Oaxaca:** Hwy 135, 9.3 km S of Santiago Dominguillo, 17.60788°N 96.93504°W, 1260 m, 20 Aug 1988, J. K. Liebherr and D. A. Yager, 1♀ (AMNH_PBI 00116234) (CUIC).

Jornandes variabilis, new species
Figures 4, 10E, 35

HOLOTYPE: ♂, MEXICO: **Puebla:** 13.3 mi NE of Tehuitzingo [18.35°N 98.2833°W, 1078 m], July 13–14, 1974, Clark, Murray, Ashe, Schaffner (AMNH_PBI 00094249). Deposited in the collection of the Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City, D.F.

DIAGNOSIS: Recognized by large size; clypeus red or rarely fuscous, most of remainder of head and rest of body including legs yellowish brown to brown, scutellum darker than pronotum, antennal segment II uniformly dark fuscous, remaining segments dark fuscous with pale areas, hemelytron yellowish brown to fuscous (fig. 4); vertex clearly wider than length of antennal segment I; labium reaching or nearly reaching mesocoxa; width of pronotum greater than length of antennal segment II; corium somewhat hyaline; metepisternum with microtrichia extending dorsal to evaporatorium of scent gland.

DESCRIPTION: *Male*: COLORATION: Generally yellowish brown to brown with fuscous to reddish-fuscous areas. Head with vertex yellowish brown, frons brown or reddish brown, clypeus reddish to reddish fuscous, maxillary and mandibular plates yellowish brown; basal area of antennal segment I pale, fuscous apically, segment II dark fuscous, III and IV pale at base, remainder of segments dark fuscous; labium brown, dark fuscous at apex. Pronotum yellowish brown with area of calli reddish brown or almost orange. Mesoscutum yellowish brown; scutellum ranging from brown to dark fuscous. Corium ranging from yellowish brown to dark fuscous, paler toward costal margin and cuneal area; membrane fuscous. Legs with coxae and trochanters pale yellowish brown; femora yellowish brown, hind femur with fuscous area near apex on one specimen, tibiae yellowish brown, usually slightly fuscous basally, dark fuscous at apex, tarsi completely dark fuscous. Pleural and sternal areas of meso- and metathorax yellowish brown to dark fuscous, evaporatorium of scent gland pale or pale fuscous. Abdomen yellowish brown with varying degrees of fuscous coloration; discrete reddish brown marks on anterolateral margin of each sternite. VESTITURE: Head, pronotum, scutellum, and corium almost devoid of setae; pleural areas of meso- and metathorax, corium with

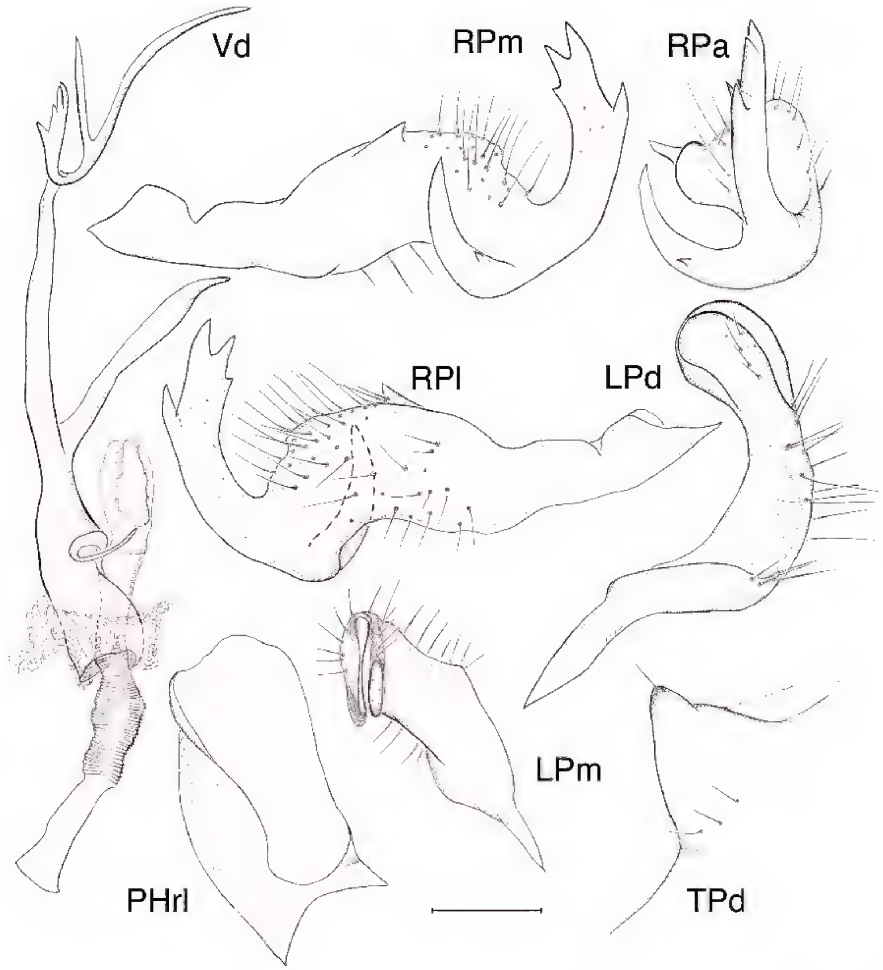

Fig. 35. Male genitalia of *Jornandes variabilis*, 13.3 mi NE of Tehuitzingo, Puebla (AMNH_PBI 00094249); scale = 0.20 mm.

sparse decumbent pale scattered short setae; setae on antennal segments II–IV decumbent, not longer than diameter of respective segments; semierect spines of tibiae as long or longer than diameter of respective tibia; decumbent setae of abdomen longer and more dense. GENITALIA (fig. 35): **Genital segment** with broad, triangular tergal process projecting from right side of midline of dorsal margin of aperture; apical portion of process with cuticular sculpturing and solitary seta; ventroposterior margin of capsule cleft; subgenital plate recessed, not protruding distally beyond aperture of capsule. **Left paramere** large, C-shaped in dorsal view; with broad, moderately produced basal tubercle on sensory lobe region; diameter of paramere gradually narrowed to middle, broadly expanded to large, round and flattened, mitten-shaped apex, medial lobe narrower than lateral lobe. **Right paramere** large; diameter of paramere gradually thickened from base to sensory lobe region, narrowed to dorsally directed distal shaft; sensory lobe with small, pointed spine; shaft with several large spines; body of paramere with large dorsally directed, gradually attenuate lobe projecting from ventral medial surface. **Phallotheca** cylindrical, 1/2 length of spiculum; aperture broadly open on dorsal and right sides. **Vesica** with one long, narrow, bifurcate spiculum; in dorsal view ventral portion of bifurcation simple, without serration, shorter than multibranched dorsal half of bifurcation; base of

spiculum broad, situated on dorsal surface of ductus seminis; basal process needlelike, slightly coiled.

Female: Color and vestiture same as for male.

MEASUREMENTS: *Male* (n = 4; those of holotype given first followed in parentheses by average and range): Length, 4.72 (4.37, 4.08–4.72); width, 2.06 (2.00, 1.88–2.10). Head length, 0.30 (0.25, 0.22–0.30); width, 1.08 (1.04, 1.00–1.08); vertex width, 0.54 (0.52, 0.48–0.54). Length of antennal segment I, 0.34 (0.34, 0.32–0.34); II, 1.34 (1.31, 1.22–1.36); III, 0.90 (0.90, 0.82–0.98); IV, 0.36 (0.39, 0.36–0.44). Pronotal length, 0.88 (0.85, 0.82–0.88); width across base, 1.66 (1.57, 1.50–1.66). Cuneal length 0.62 (0.61, 0.60–0.62); width across base, 0.76 (0.72, 0.66–0.76).

Female (single paratype): Length, 4.40; width, 2.40. Head length, 0.26; width, 1.12; vertex width, 0.56. Length of antennal segment I, 0.32; II, 1.28; III, 0.84; IV, 0.80. Pronotal length, 1.80; width across base, 1.72. Cuneal length, 0.72; width across base, 0.66.

DISCUSSION: This is the largest species of the genus. Four of the five available specimens are to varying degrees teneral, which may account for some of the variation given in the color description. The reddish to reddish-fuscous clypeus is a useful character in recognizing this species. The maxillary plate is not darker than the mandibular plate. The setae on the dorsum are short and inconspicuous; very few setae are present on the hemelytral membrane.

HOST PLANT: Unknown.

ETYMOLOGY: The name refers to the color variation exhibited by members of this species.

DISTRIBUTION: Known from two localities in southwestern Puebla and northeastern Guerrero (fig. 10E).

PARATYPES: MEXICO: **Guerrero:** 19 mi S of Iguala, 17.57373°N 100.36666°W, 09 Jul 1974, Clark, Murray, Ashe, Schaffner, 2♂ (AMNH_PBI 00184781, AMNH_PBI 00184782) (TAMU). **Puebla:** 13.3 mi NE of Tehuitzingo, 18.35°N 98.2833°W, 1078 m, 13 Jul 1974–14 Jul 1974, Clark, Murray, Ashe, Schaffner, 1♂ (AMNH_PBI 00094283), 1♀ (AMNH_PBI 00094284) (TAMU).

Jornandes viridulus,
new species
Figures 4, 10E, 36

HOLOTYPE: ♂, MEXICO: **Guerrero:** 2.1 mi NW of Cacahuamilpa [18.67484°N 99.5602°W], August 11, 1978, Plitt & Schaffner (AMNH_PBI 00184932). Deposited in the collection of the Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City, D.F.

DIAGNOSIS: Recognized by body being more or less uniformly pale green to pale yellowish brown, hemelytral membrane with pale fuscous areas (fig. 4); vertex width subequal to length of antennal segment I; labium reaching or nearly reaching mesocoxa; width of pronotum greater than length of antennal segment II; metepisternum dorsal to evaporative area of scent gland without microtrichia; setae prominent. Similar to *J. burserae*, which shares several features of the male genitalia not found in other congeners, but distinguished by the darker green coloration and by the fuscous areas of the hemelytral membrane.

DESCRIPTION: *Male*: COLORATION: Generally pale yellowish brown and pale green. Head yellowish brown to green; antenna pale yellowish brown occasionally pale fuscous on segment III and IV; labium pale, dark fuscous apically. Dorsal surface of remainder of insect variably yellowish brown with dark green areas; membrane of hemelytron pale but usually with large areolar cell and area near margin of membrane pale fuscous. Pleural and sternal areas of body posterior to pronotum pale yellowish brown (teneral specimens with green tint). Legs pale, rarely with apex of hind femur fuscous. VESTITURE: Frons and vertex of head disc of pronotum, scutellum and corium with both erect and semierect setae; setae on antennal segments II–IV decumbent, length not longer than diameter of respective segment; semierect setae on tibiae longer than diameter of respective tibia; setae of abdomen longer and more dense. GENITALIA (fig. 36): **Genital segment** with bifurcate tergal process projecting from right side of midline on dorsal margin of aperture; tergal process flattened, truncate, with short T-shape projection on medial surface; ventro-

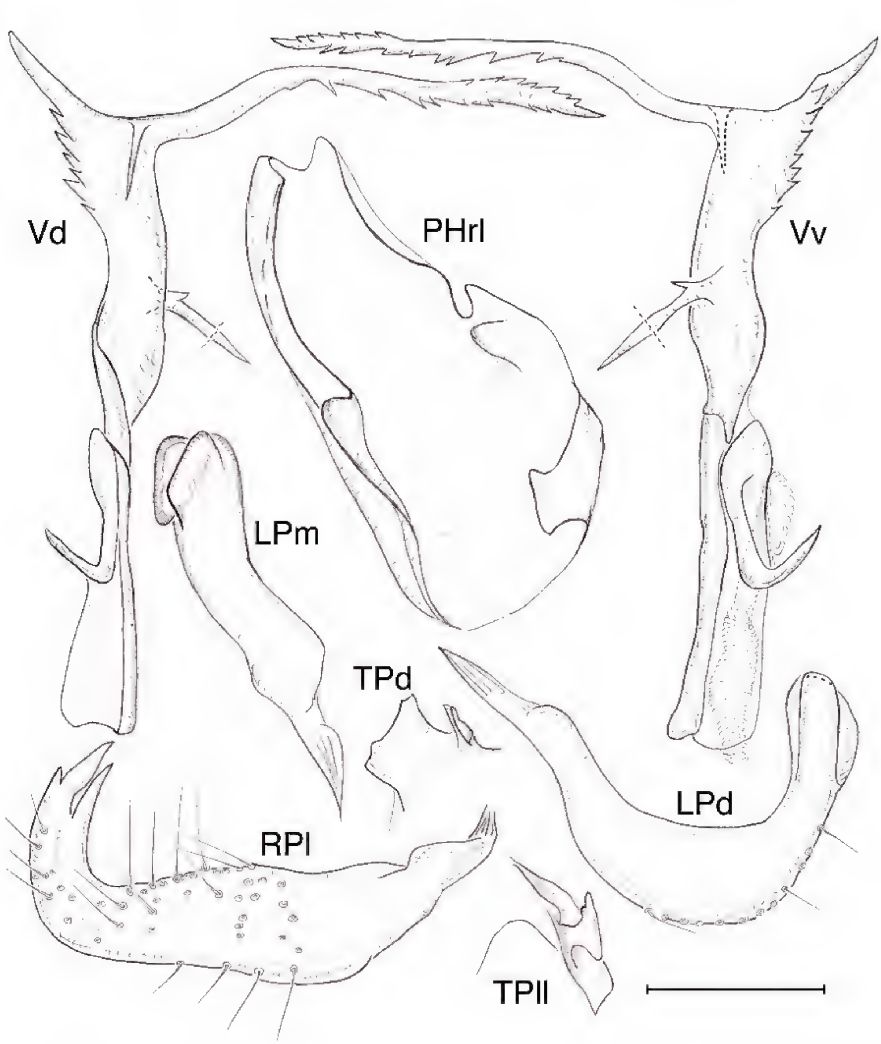

Fig. 36. Male genitalia of *Jornandes viridulus*, 10.3 mi S of Iguala, Guerrero (AMNH_PBI 00118209); scale = 0.20 mm; apex of medial lobe reconstructed.

posterior margin of capsule not modified. **Left paramere** C-shaped in dorsal view; with unmodified sensory lobe; diameter gradually expanded from base to mitten-shaped apex. **Right paramere** approximately equal in size to left paramere, diameter of paramere gently thickened at base, distal region curved dorsally with three long apical spines. **Phallotheca** cone shaped, 1/2 length of spiculum; aperture large, convoluted, open on dorsal surface; mesolateral margins of aperture with pair of medially directed pockets, left side of aperture with notch to accommodate basal spine of spiculum. **Vesica** with long, sinuate, trifurcate spiculum, base thick and sinuate, situated on dorsal surface of ductus seminis; apex of spicular trunk with long, medially serrate, needlelike branch on right side, middle and left side of apex with much shorter serrate or needlelike branches, middle of spiculum trunk with short, narrow branch [broken in preparation]; base of spiculum with narrow recurved branch.

Female: Color and vestiture same for male.

MEASUREMENTS: *Male* (n = 8; those of holotype given first followed in parentheses by average and range): Length 3.82 (3.64, 3.40–4.04); width, 1.54 (1.47, 1.38–1.54). Head length, 0.22 (0.21, 0.18–0.24); width,

0.82 (0.78, 0.76–0.82); vertex width, 0.28 (0.28, 0.28–0.30). Length of antennal segment I, 0.28 (all); II, 1.18 (1.12, 1.00–1.18); III, 0.82 (0.79, 0.74–0.84); IV, 0.22 (0.29, 0.22–0.34). Pronotal length, 0.66 (0.63, 0.62–0.66); width across base, 1.28 (1.22, 1.18–1.28). Cuneal length, 0.74 (0.68, 0.64–0.74); width across base, 0.54 (0.50, 0.48–0.54).

Female (n = 13; average given first followed in parentheses by range): Length, 3.61 (3.36–4.00); width, 1.56 (1.38–1.76). Head length, 0.20 (0.18–0.24); width, 0.77 (0.72–0.82); vertex width, 0.33 (0.30–0.34). Length of antennal segment I, 0.28 (0.26–0.30); II, 1.12 (0.98–1.27); III, 0.76 (0.74–0.82); IV, 0.31 (0.26–0.36). Pronotal length, 0.66 (0.54–0.72); vertex width, 1.24 (1.06–1.36). Cuneal length, 0.68 (0.62–0.74); width across base, 0.54 (0.43–0.60).

HOST PLANT: Unknown.

ETYMOLOGY: Named for its yellowish-green coloration.

DISTRIBUTION: Known from three localities in northeastern Guerrero and southeastern Puebla (fig. 10E).

DISCUSSION: This is one of two species with green coloration. The other is *J. burserae* and a brief discussion of the similarities and differences is presented in that discussion. As with *J. burserae*, a few specimens appear to have lost of the green coloration and are more pale yellowish brown, which is probably the result of preservation. The majority of the specimens were taken in Guerrero; however, two females came from Puebla a few miles from where many *J. burserae* were collected.

PARATYPES: MEXICO: **Guerrero:** 10.3 mi S of Iguala, 17.70023°N 100.36666°W, 23 Jul 1981, Bogar, Schaffner and Friedlander, 1♂ (AMNH_PBI 00119083) (AMNH). 1♂ (AMNH_PBI 00118209) (CNC). 4♂ (AMNH_PBI 00106449–AMNH_PBI 00106452), 11♀ (AMNH_PBI 00106455–AMNH_PBI 00106465) (TAMU). 2.1 mi NW of Cacahuamilpa, 18.67484°N 99.5602°W, 11 Aug 1978, Plitt and Schaffner, 1♀ (AMNH_PBI 00119084) (CNC). 1♂ (AMNH_PBI 00106448) (TAMU). **Puebla:** 1.1 mi W of Acatlan, 18.19999°N 98.06683°W, 13 Jul 1974, Clark, Murray, Ashe, Schaffner, 2♀ (AMNH_PBI 00106453, AMNH_PBI 00106454) (TAMU).

Jornandes xochipalensis, new species
Figures 4, 10D, 37

HOLOTYPE: ♂, MEXICO: **Puebla:** 5 mi SE of Izucar de Matamoros [18.54858°N 98.41242°W], July 20, 1984, Carroll, Schaffner, Friedlander (AMNH_PBI 00184933). Deposited in the collection of the Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City, D.F.

DIAGNOSIS: Recognized by relatively small size, head dark fuscous to black but usually with brown coloration near eyes and occasionally across posterior margin of vertex; antennae and body dark fuscous to black, legs yellowish brown (fig. 4); antennal segment II with a few semierect setae slightly longer than diameter of segment; vertex clearly wider than length of antennal segment I; labium short, only reaching procoxa; pronotum smooth and strongly shining, width of pronotum greater than length of antennal segment II; metepisternum dorsal to evaporative area of scent gland with microtrichia. *Jornandes xochilapensis* is closely related to *J. ater* as evidenced by the shared tubular process on the medial surface at the base of the right paramere. But *J. xochipalensis* distinguished by the pale procoxa, whereas in *J. ater* the coxa is dark. The length of *J. xochilapensis* is almost a millimeter shorter than *J. ater*. The two species can also be separated by features of the male genitalia, especially the shape of the distal portion of the vesical spiculum and width of the opening of the distal portion of the left paramere.

DESCRIPTION: *Male*: COLORATION: Gennerally dark fuscous to black with pale legs. Head dark fuscous to black with areas along eyes and sometimes on posterior margin of vertex brown, area immediately above maxillary plate sometimes fuscous to brown; antenna dark fuscous; labium yellowish brown, apex dark fuscous. Remainder of body dark fuscous to black. Procoxa yellowish brown, meso- and metacoxae fuscous at base, yellowish brown on apical half; femora yellowish brown with a small pale fuscous area near apices; tibiae and tarsi slightly darker in color than femora. VESTITURE: Head and pronotum almost devoid of setae, scutellum and corium with scattered

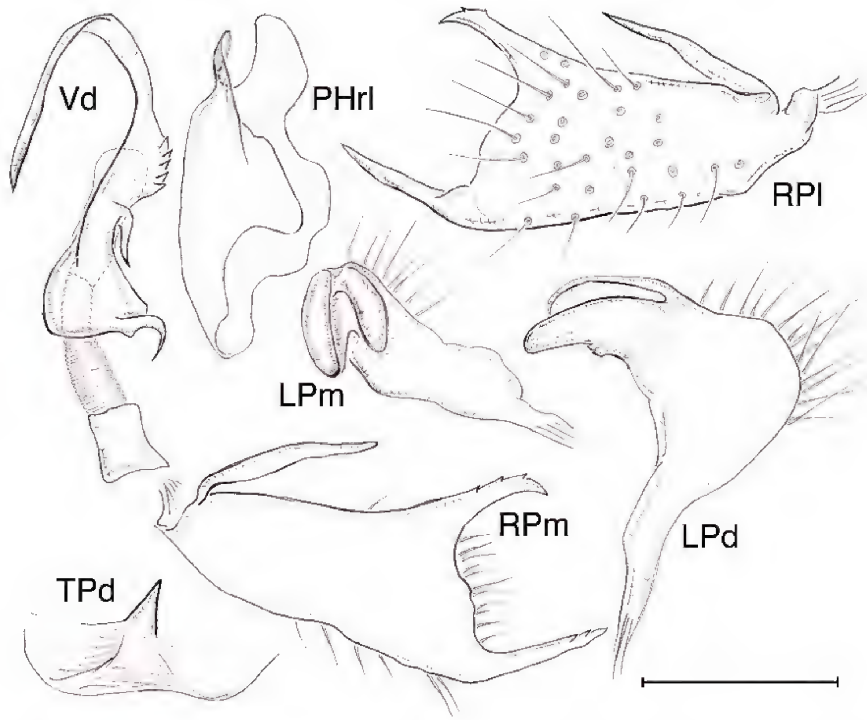

Fig. 37. Male genitalia of *Jornandes xochilapensis*, 6 mi E of Xochipala, Guerrero (AMNH_PBI 00118201); scale = 0.20 mm.

decumbent setae usually longer than diameter of antennal segment II; antennal segments II–IV with short decumbent setae and a few semierect setae clearly longer than diameter of respective segments; semierect spines on tibiae slightly longer than diameter of respective tibia; decumbent setae of abdomen longer and more dense. GENITALIA (fig. 37): **Genital segment** with moderately long, pointed tergal process located on midline of dorsal margin of aperture; ventroposterior margin of capsule with flattened flange, subgenital plate narrow distally, slightly projecting beyond aperture of capsule. **Left paramere** stoutly C-shaped in dorsal view; sensory lobe broadly produced; diameter of paramere constricted subapically; apex mittenlike, medial process of apex longer than lateral portion. **Right paramere** stout, similar in size to left paramere; sensory lobe sharply pointed dorsally; diameter of paramere equally thick distal to sensory lobe, terminating in small, dorsally directed apical point; extreme base of paramere with long, narrow, tubelike process reaching to base of sensory lobe. **Phallotheca** small, cone shaped, as long as 1/2 of vesical spiculum; aperture open widely from dorsal surface to narrowed apex. **Vesica** small; spiculum sinuate, thickened, and serrate medially with small recurved lobe; base situated on dorsal surface of ductus seminis, without basal process; distal region long, needlelike, length 2/3 of spiculum body.

Female: Color and vestiture as on male.

MEASUREMENTS: *Male* (n = 4; those of holotype given first followed in parentheses by average and range): Length, 2.94 (2.79, 2.60–2.94); width, 1.14 (1.16, 1.04–1.16). Head length, 0.28 (0.29, 0.26–0.34); width, 0.66 (0.65, 0.64–0.66); vertex width, 0.34 (0.33, 0.30–0.34). Length of antennal segment I, 0.16 (0.17, 0.16–0.18); II, 0.64 (0.63, 0.58–0.64); III, 0.54 (0.51, 0.46–0.54); IV, 0.24 (0.23, 0.22–0.24). Pronotal length, 0.52 (0.50, 0.48–0.52); width across base, 1.04 (1.01, 0.94–1.04). Cuneal length, 0.54 (0.51, 0.48–0.54); width across base, 0.44 (0.41, 0.36–0.44).

Female (n = 4; average followed in parentheses by range): Length, 2.52 (2.40–

2.76); width, 1.25 (1.20–1.34). Head length, 0.26 (0.24–0.30); width, 0.64 (0.62–0.66); vertex width, 0.35 (0.34–0.36). Length of antennal segment I, 0.16 (all); II, 0.53 (0.48–0.58); III, 0.41 (0.38–0.46); IV, 0.24 (0.22–0.26). Pronotal length, 0.48 (all); width across base, 1.02 (1.00–1.12). Cuneal length, 0.42 (0.38–0.46); width across base, 0.38 (0.36–0.42).

DISCUSSION: *Jornandes xochilapensis* is closely related to *J. ater* and is discussed in more detail there. Characters shared by both species include the body slightly flattened as seen from the side; the head and pronotum are highly polished; antennal segment II has a few long semierect setae; the labium reaching barely beyond the procoxa at most. The cuticular sculpturing on the corium is visible but not as prominent as on most other species of the genus.

HOST PLANT: Unknown.

ETYMOLOGY: Named after the town in the state of Guerrero where this species occurs.

DISTRIBUTION: Known from three localities in southwestern Puebla and northern Guerrero (fig. 10D).

PARATYPES: MEXICO: **Guerrero:** 18.2 mi S of Iguala, 17.5739°N 100.36666°W, 914 m, 05 Jul 1987, Kovarik and Schaffner, 3♀ (AMNH_PBI 00106445–AMNH_PBI 00106447) (TAMU). 6 mi E of Xochipala, 17.7936°N 99.54263°W, 1067 m, 13 Jul 1985, Jones, Schaffner, 1♂ (AMNH_PBI 00118201), 1♀ (AMNH_PBI 00119106) (CNC); 18 Jul 1984, J. B. Woolley, 1♂ (AMNH_PBI 00119105) (AMNH).

Jornandes zapotecas, new species
Figures 4, 10A, 38

HOLOTYPE: ♂, Mexico: **Oaxaca:** 6 mi W of Tehuantepec [16.33333°N 95.32372°W], July 16, 1987, Kovarik, Schaffner (AMNH_PBI 00184934). Deposited in the collection of the Instituto de Biology, Universidad Nacional Autónoma de Mexico, Mexico City, D.F.

DIAGNOSIS: Recognized by head dark fuscous with pale yellowish brown on posterior margin of vertex and limited areas along eyes, pronotum and hemelytron dark fuscous to black, abdomen paler, antenna and legs yellowish brown (fig. 4); vertex width about equal to length of antennal segment I; eye sexually dimorphic being larger in the male; labium reaching mesocoxa; width of pronotum greater than length of antennal segment II; costal margins of hemelytron subparallel; setae on pronotum, scutellum, and corium conspicuous, about as long as diameter of antennal segment II; metepisternum dorsal to evaporative area of scent gland with microtrichia. *Jornandes zapotecas* is most closely related to *J. jaredi* and is separated from the latter by its smaller size and genitalic structure, especially with the smaller tergal process.

DESCRIPTION: *Male*: COLORATION: Generally dark fuscous to black with appendages, limited areas of head, yellowish brown. Head dark fuscous to black with carina of vertex, areas of frons along eyes, and variable pattern generally running from antennal base, along both sides of suture separating mandibular plate from maxillary plate paler; antenna pale yellowish brown, labium pale yellowish brown with apex dark fuscous. Thorax dark fuscous to black. Corium dark fuscous to black with restricted pale area at wing base, and membrane paler fuscous. Legs uniformly pale yellow, apices of tarsi pale fuscous. Evaporatorium pale fuscous. Abdomen usually dark fuscous but sometimes paler. VESTITURE: Prominent. Length of semierect setae on head, pronotum, and corium as long or almost as long as diameter of antennal segments; membrane sometimes with a few short setae. Setae on underside of abdomen slightly longer. GENITALIA (fig. 38): **Genital segment** with short, smooth-margined, pointed tergal process located far right of midline on dorsal margin of aperture; ventroposterior margin of capsule with sharp notch on somewhat pointed ventral apex, subgenital plate moderately narrow distally, projecting dorsal to aperture of capsule. **Left paramere** C-shaped in dorsal view; sensory lobe not produced beyond diameter of paramere; diameter expanded to slightly expanded mittenlike apex. **Right paramere** size similar to left paramere; somewhat C-shaped; dorsal margin sinuate, body of paramere offset dorsally from base of paramere; distal region with small dorsally directed point. **Phallotheca** small, cone

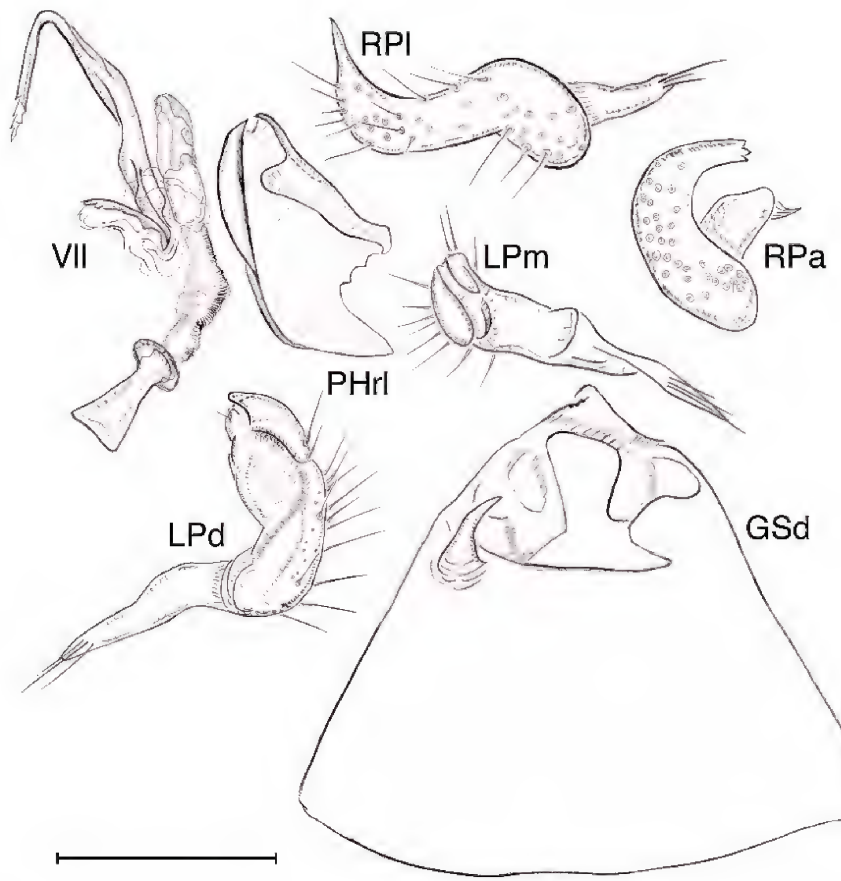

Fig. 38. Male genitalia of *Jornandes zapotecas*, 9 mi W of Tehuantepec, Oaxaca (AMNH_PBI 00118212); scale = 0.20 mm.

shaped, almost as long as vesical spiculum; aperture open widely on dorsal surface to narrowed apex. **Vesica** small; spiculum sinuate on basal half, thickened medially; length of distal recurved region 1/2 of spiculum body; spiculum somewhat concave subapically with serrate, sharply pointed apex; base wide, situated on dorsal surface of ductus seminis with produced sclerotized attachment to conjunctiva.

Female: Similar color and vestiture as male.

MEASUREMENTS: *Male* (n = 4; those of holotype given first followed in parentheses by average and range): Length, 2.68 (2.59, 2.50–2.68); width, 1.00 (1.04, 1.00–1.10). Head length, 0.14 (0.14, 0.12–0.18); width, 0.70 (all); vertex width, 0.26 (0.25, 0.24–0.26). Length of antennal segment I, 0.22 (0.23, 0.22–0.24); II, 0.76 (0.77, 0.74–0.80); III, 0.58 (0.57, 0.54–0.60); IV, 0.36 (0.35, 0.32–0.36). Pronotal length, 0.46 (0.48, 0.46–0.50); width across base 0.84 (0.87, 0.82–0.90). Cuneal length, 0.46 (0.46, 0.44–0.48); width across base, 0.30 (0.31, 0.30–0.32).

Female (n = 7; average followed in parentheses by range): Length, 2.76 (2.50–2.94); width, 1.16 (1.08–1.20). Head length, 0.13 (0.10–0.16); width, 0.69 (0.66–0.72); vertex width, 0.31 (0.30–0.34). Length of antennal segment I, 0.23 (0.20–0.24); II, 0.77 (0.68–0.80); III, 0.59 (0.52–0.68); IV, 0.34 (0.28–0.38). Pronotal length, 0.54 (0.52–0.56); width across base, 0.95 (0.90–1.00). Cuneal length, 0.45 (0.42–0.48); width across base, 0.36 (0.34–0.40).

DISCUSSION: The vestiture is very easily seen on specimens of this species. The vertex width is about equal to the length of antennal segment I. *Jornandes zapotecas* and *J. jaredi*

have pale legs and antennae and long decumbent setae evenly distributed over the dorsum, especially on the scutellum and corium. This is one of the smaller species of the genus. *Jornandes zapotecas* is also similar in appearance to some small shining black *Scalponotatus* spp.

HOST PLANT: *Ceiba parvifolia* Rose (Malvaceae, formerly Bombacaceae).

ETYMOLOGY: Named for the indigenous people who inhabit the area.

DISTRIBUTION: Known from the type and an adjacent locality in southwestern Oaxaca (fig. 10A).

PARATYPES: **Oaxaca:** 6 mi W of Tehuantepec, 16.33333°N 95.32372°W, 15 Jul 1987, Kovarik and Schaffner, *Ceiba parviflora* Rose (Malvaceae), 1♂ (AMNH_PBI 00184795), 1♀ (AMNH_PBI 00184796) (TAMU). 9 mi W of Tehuantepec, 16.33328°N 95.36972°W, 13 Jul 1987, Kovarik and Schaffner, *Ceiba parvifolia* Rose (Bombacaceae), 1♀ (AMNH_PBI 00094282), 1♂ (AMNH_PBI 00118212), 1♀ (AMNH_PBI 00119111) *Ceiba parvifolia* Rose (Bombacaceae), 1♂ (AMNH_PBI 00094281) (CNC). *Ceiba parviflora* Rose (Malvaceae), 4♀ (AMNH_PBI 00184797–AMNH_PBI 00184800) (TAMU).

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AMNH	Division of Invertebrate Zoology, American Museum of Natural History, New York; Randall T. Schuh.
BMNH	Natural History Museum, London, England; Mick Webb, Paul Brown.
CAS	California Academy of Sciences, San Francisco; Paul Arnaud, Jr., Norman Penny.
CNC	Canadian National Collection of Insects, Agriculture, and Agri-Food Canada, Ottawa; Robert G. Foottit.
CUIC	Cornell University, Ithaca, New York; James K. Liebherr, E. R. Hoebeke.
KU	University of Kansas, Snow Entomological Museum, Lawrence; Alex Slater.
UMMC	University of Michigan, Museum of Zoology–Insect Division; Ann Arbor, Mark F. O'Brien, Barry M. O'Connor.
TAMU	Department of Entomology, Texas A&M University; College Station, Texas, Edward G. Riley.
UCB	University of California, Berkeley; John Chemsak, Cheryl Barr.
UNAM	Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City, D.F.; Harry Brailovsky A.
USNM	United States National Museum of Natural History, Washington, D.C.; Thomas J. Henry, Michele Touchet.

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APPENDIX 1

Unique Specimen Identifiers for Habitus Photographs of *Ficinus* and *Jornandes* Species

Figs. 2–4. All specimens for the new species are paratypes unless otherwise noted, specimens for other species are nontype specimens unless otherwise noted; localities are in Mexico, except for *J. championi* in Guatemala. USI numbers ordered left to right.

Ficinus distanti: ♂ Guerrero: 6 mi E of Xochipala (AMNH_PBI 00094259); ♀ same as male (AMNH_PBI 00094260).

F. sagittarius: ♂ Oaxaca: Huajuapan (AMNH_PBI 00114065); ♀ same as male (AMNH_PBI 00114066); ♀ lectotype, Guerrero: Chilpancingo (AMNH_PBI 00085407).

Jornandes albipes: ♂ paratype, Sinaloa, Mazatlan (AMNH_PBI 00111391); ♀ same as male (AMNH_PBI 00111392).

J. ater: ♂ Puebla, 4.4 mi SW of Acatepec (AMNH_PBI 00094278); ♀ same as male (AMNH_PBI 00094277).

J. brailovskyi: ♂ Guerrero, 18.2 mi S of Iguala (AMNH_PBI 00118202); ♀ same as male (AMNH_PBI 00119108).

J. burserae: ♂ Puebla, 2.1 mi S of Coxcatlan (AMNH_PBI 00094292); ♀ Puebla, 12 mi S of Izucar de Matamoros (AMNH_PBI 00094293).

J. ceibae: ♂ Puebla, 2.1 mi S of Coxcatlan (AMNH_PBI 00094286); ♀ same as male (AMNH_PBI 00094288).

J. championi: ♀ lectotype, La Mercedes (AMNH_PBI 00085377).

J. crotoni: ♂ Oaxaca, 2.7 mi NW of El Camaron (AMNH_PBI 00094272); ♀ Oaxaca, 2.1 mi NW of Totolapan (AMNH_PBI 00094275).

J. cruralis: ♂ Guerrero, 10.3 mi S of Iguala (AMNH_PBI 00094261); ♀ Guerrero, 6.2 mi SW of Xochipala (AMNH_PBI 00094262); ♀ holotype, Guerrero, Chilpancingo (AMNH_PBI 00085376).

J. genetivus: ♂ Puebla, 14 mi N of Acatlan (AMNH_PBI 00094265); ♂ Puebla, 4.4 mi SW of Acatepec (AMNH_PBI 00094266); ♀ same as previous male (AMNH_PBI 00094263); ♀ Puebla, 14.4 mi SW of Izucar de Matamoros (AMNH_PBI 00094264).

J. heliocarpusi: ♂ Sinaloa, 13 mi E of Concordia (AMNH_PBI 00114064); ♂ Zacatecas, 24.7 mi S of Juchipila (AMNH_PBI 00094295); ♀ same as previous male (AMNH_PBI 00119109).

J. jaredi: ♂ Puebla, 13.3 mi NE of Tehuitzingo (AMNH_PBI 00094299); ♀ same as male (AMNH_PBI 00094298).

J. lynnae: ♂ Oaxaca, 2.1 mi NW of Totolapan (AMNH_PBI 00094290); ♀ same as male (AMNH_PBI 00094291).

J. michoacanensis: ♂ holotype, Michoacan, 22 mi NE of Arteaga (AMNH_PBI 00094289); ♀ same as male (AMNH_PBI 00184623).

J. mimosae: ♂ Guerrero, 10.3 mi S of Iguala (AMNH_PBI 00094269); ♀ same as male (AMNH_PBI 00094270).

J. nathani: ♂ Puebla, 7.3 mi SW of Izucar de Matamoros (AMNH_PBI 00094296); ♀ Guerrero, 2.1 mi NW of Cacahuamilpa (AMNH_PBI 00094297).

J. rachelleae: ♂ Guanajuato, Ojo de Agua (AMNH_PBI 00112187); ♀ same as male (AMNH_PBI 00112190).

J. rileyi: ♂ Baja California Sur, 14.4 mi E on Ramal a Los Naranjos (AMNH_PBI 00094301); ♀ same as male (AMNH_PBI 00094302).

J. robustus: ♂ Puebla, 4 mi W of Acatepec (AMNH_PBI 00094271); ♀ same as male (AMNH_PBI 00119080).

J. sinaloa: ♂ Sonora, 7 mi W of Alamos (AMNH_PBI 00119458); ♀ same as male (AMNH_PBI 00119459).

J. susanae: ♂ Guerrero, 18.2 mi S of Iguala (AMNH_PBI 00184619); ♀ same as male (AMNH_PBI 00184622).

J. tehuacanensis: ♂ Puebla, Tehuacan, 6 mi SW of Tehuacan (AMNH_PBI 00094279); ♀ same as male (AMNH_PBI 00094280).

J. variabilis: ♂ holotype, Puebla, 13.3 mi NE of Tehuitzingo (AMNH_PBI 00094249); ♀ same as male (AMNH_PBI 00094284).

J. viridulus: ♂ Guerrero, 10.3 mi S of Iguala (AMNH_PBI 00118209); ♀ Guerrero, 2.1 mi NW of Cacahuamilpa (AMNH_PBI 00119084).

J. xochilapensis: ♂ Guerrero, 6 mi E of Xochipala (AMNH_PBI 00118201); ♀ same as male (AMNH_PBI 00119106).

J. zapotecas: ♂ Oaxaca, 9 mi W of Tehuantepec (AMNH_PBI 00094281); ♀ same as male (AMNH_PBI 00094282).

APPENDIX 2

Abbreviations in Genitalia Illustrations

MALE

GSd	Genital segment, dorsal view
LPa	Left paramere, apical view
LPd	Left paramere, dorsal view
LPl	Left paramere, lateral view
LPm	Left paramere, medial view
LPv	Left paramere, ventral view
PHrl	Phallotheca, right lateral view
PHd	Phallotheca, dorsal view
RPa	Right paramere, apical view
RPd	Right paramere, dorsal view
RPl	Right paramere, lateral view
RPm	Right paramere, medial view
RPv	Right paramere, ventral view
TPd	Tergal process, dorsal view
TPll	Tergal process, left lateral view
Vd	Vesica, dorsal view
Vll	Vesica, left lateral view
V, PHrl	Vesica and phallotheca, right lateral view
Vrd	Vesica, right dorsal view
Vrl	Vesica, left lateral view
Vrv	Vesica, right ventral view
Vv	Vesica, ventral view

FEMALE

DLP	Dorsal labiate plate
GP8	Gonapophyses 8
IRL	Interramal lobe
IRS	Interramal sclerite
SR	Sclerotized Ring
VLP	Ventral labiate plate
VUL	Vulva